3.2

AIR QUALITY AND GREENHOUSE GAS EMISSIONS

3.2.1 Introduction

This chapter includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential short- and long-term air quality impacts caused by the proposed project. The method of analysis for short-term construction, long-term regional (operational), local mobile-source, and toxic air emissions is consistent with the recommendations of the South Coast Air Quality Management District (SCAQMD). This chapter also presents the current state of climate change science, and greenhouse gas (GHG) emissions sources in California; a summary of applicable regulations; and a description of project-generated GHG emissions and their contribution to global climate change. In addition, mitigation measures are recommended as necessary to reduce significant air quality impacts.

3.2.2 Existing Setting

3.2.2.1 Topography, Regional Climate, and Meteorology

Topography

The proposed project site is located in the Harbor District of the City of Los Angeles within the South Coast Air Basin (SCAB). The SCAB is a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County.

The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

The Harbor District of the City of Los Angeles is located at the base of the southeastern edge of the Palos Verdes Hills in a low lying coastal area, south of downtown Los Angeles.

Elevations in the Port of Los Angeles (the Port or POLA) are measured in Mean Lower-Low Water level (MLLW). The average of the lowest water level during low tide periods each day is typically set as a benchmark of 0 feet and is defined as MLLW. Port structures and land surfaces are expressed as height above (or below) MLLW. The proposed project site (Berth 87) is 15 feet above MLLW, while other berths range from 12 to 18 .5 feet above MLLW.

Meteorology and Regional Climate

The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes (also referred to as a Mediterranean climate). The climate consists of a semiarid environment with mild winters, warm summers, moderate temperatures, and comfortable humidity. Precipitation is limited to a few winter storms. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The Santa Ana winds often ventilate the SCAB of pollutants. The Palos Verdes Hills have a major influence on wind flow in the Port. For example, during afternoon southwest sea breeze conditions, the Palos Verdes Hills often block flow and create a zone of lighter winds in the Inner Harbor area of the Port. During strong sea breezes, this flow can bend around the north side of the Hills and end up as a northwest breeze in the Inner Harbor area. This topographic feature also deflects northeasterly land breezes that flow from the coastal plains to a more northerly direction through the Port.

The average annual temperature varies little throughout the SCAB, averaging 75 degrees Fahrenheit (°F). The eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures, while coastal areas generally experience cooler temperatures. All portions of the SCAB have had recorded temperatures over 100°F in recent years.

Although the SCAB has a semi-arid climate, the air near the surface is moist due to the presence of a shallow marine layer. Except for infrequent periods when

dry, continental air is brought into the SCAB by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the SCAB. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the SCAB.

The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the day. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone observed during summer months in the SCAB. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The SCAB has a limited ability to disperse these pollutants due to typically low wind speeds.

The area in which the proposed project is located offers clear skies and sunshine, yet is still susceptible to air inversions. These inversions trap a layer of stagnant air near the ground, where it is then further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources.

3.2.2.2 Criteria Pollutants and Air Monitoring

Air pollution is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation.

Seven air pollutants have been identified by the federal Environmental Protection Agency (EPA) as being of concern nationwide: carbon monoxide (CO); ozone (O_3); nitrogen dioxide (NO_2); particulate matter sized 10 micrometers (µm) or less (PM_{10}), also called respirable particulate and suspended particulate; fine particulate matter equal to or less than 2.5 µm in size ($PM_{2.5}$); sulfur dioxide (SO_2); and lead (Pb). These pollutants are collectively referred to as criteria pollutants. The sources of these pollutants, their effects on human health and the

nation's welfare, and their final deposition in the atmosphere vary considerably. Health effects of mission source types are summarized in Table 3.2-1, *Sources and Health Effects of Criteria Pollutants*.

Table 3.2-1. Sources and Health Effects of Criteria Air Pollutants

Pollutant	*Sources*	*Acute[1] Health Effects*	*Chronic[2] Health Effects*
Ozone	Secondary pollutant resulting from reaction of ROG and NO_X in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	Increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	Permeability of respiratory epithelia, possibility of permanent lung impairment
Nitrogen dioxide (NO_2)	Combustion devices (e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines)	Coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	Chronic bronchitis, decreased lung function
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	Headache, dizziness, fatigue, nausea, vomiting, death	Permanent heart and brain damage
Sulfur dioxide (SO_2)	Coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	Fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	Breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	Alterations to the immune system, carcinogenesis
Lead	Metal processing	Reproductive/ developmental effects (fetuses and children)	Numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases.
[1] "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.
[2] "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.
Sources: United States Environmental Protection Agency, 2011.

Most of the criteria pollutants are directly emitted. However, O_3 is a secondary pollutant that is formed in the atmosphere by chemical reactions between NO_X and volatile organic compounds (VOCs), most commonly referred to as reactive organic gases (ROG). According to the most recent emissions inventory data for the SCAB[1], mobile sources are the largest contributors of both ROG and NO_X.

Criteria air pollutants are classified in each air basin, county, or in some cases, within a specific urbanized area. The classification is determined by comparing actual monitoring data with state and federal standards. If a pollutant concentration is lower than the standard, the area is classified as attainment for that pollutant. If an area exceeds the standard, the area is classified as nonattainment for that pollutant. If there is not enough data available to determine whether the standard has been exceeded in an area, the area is designated unclassified.

Criteria Air Pollutants

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. Nitrogen oxides are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. During the last 20 years the maximum amount of ROG and NO_X emissions have decreased substantially. The SCAB is designated as a nonattainment area for ozone.

Nitrogen Dioxide

Nitrogen dioxide is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined

[1] California Air Resources Board, *2008 Estimated Annual Average Emissions: South Coast Air Basin,* accessed December 20, 2011, http://www.arb.ca.gov/app/emsinv/emssumcat.php.

emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions. There are currently no attainment designations for the federal nitrogen dioxide standard.

Carbon Monoxide

Carbon monoxide is a product of incomplete combustion, principally from automobiles and other mobile sources of pollution. Carbon monoxide emissions from wood-burning stoves and fireplaces can be measurable contributors. The major immediate health effect of CO is that it competes with oxygen in the blood stream and can cause death by asphyxiation. However, concentrations of CO in urban environments are usually only a fraction of those levels where asphyxiation can occur. Peak CO levels occur typically during winter months, due to a combination of stagnant weather conditions and higher emission rates, such as ground-level radiation inversions. The SCAB is in attainment of the federal CO standard.

Sulfur Dioxide

Sulfur dioxide is produced when sulfur-containing fuel is burned. Health and welfare impacts attributed to SO_2 are due to the highly irritant effects of sulfate aerosols, such as sulfuric acid, which is produced from SO_2. Natural gas contains trace amounts of sulfur, while fuel oils contain larger amounts. Sulfur dioxide can increase the occurrence of lung disease and cause breathing problems for asthmatics. It reacts in the atmosphere to form acid rain, which is destructive to lakes, streams, vegetation, and crops, as well as to buildings, materials, and works of art. All areas in the state are considered either attainment or unclassified for SO_2. The SCAB is in attainment of the federal SO_2 standard.

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors. Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions are generally dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Emissions of $PM_{2.5}$ are generally dominated by the same sources as emissions of PM_{10}. The SCAB is designated as a nonattainment area for $PM_{2.5}$.

Lead

Lead exposure can occur through multiple pathways, ingestion of lead in food caused by water, soil, or dust contamination and inhalation of air. Excessive exposure to lead can affect the central nervous system. Lead gasoline additives, non-ferrous smelters, and battery plants were historically a significant contributor to atmosphere lead emissions. Legislation in the early 1970s required gradual reduction of the lead content of gasoline over a period of time, which has dramatically reduced lead emissions from mobile and other combustion sources. Additionally, unleaded gasoline was introduced in 1975, and together these controls have essentially eliminated violations of the lead standard for ambient air in urban areas. The SCAB is designated as attainment for lead.

Monitoring Station Data and Attainment Area Designations

The Port maintains 4 air quality monitoring stations within its operational region of influence, which have been collecting data since February 2005. These 4 stations measure ambient air pollution levels within the vicinity of the Port including: O_3, SO_2, NO_2, CO, PM_{10}, and $PM_{2.5}$), polycyclic aromatic hydrocarbons (PAHs), and ultrafine particles. Table 3.2-2, *Maximum Pollutant Concentrations from the Port Stations*, presents the maximum pollutant concentrations measured at the 4 stations over 3 most recent years (2009 to 2011). The following are the 4 air monitoring stations listed from nearest to farthest from the project site:

- **San Pedro Community Station – Located at the Liberty Hill Plaza Building.** This station is located adjacent to the Port administrative property on Palos Verdes Street. This location is near the western edge of Port operational emission sources and adjacent to residential areas in San Pedro. During onshore flows, aged urban emissions, marine aerosols, and fresh Port emissions have the potential to affect this site. During nighttime offshore flows, this site measures aged urban emissions and Port emissions.
- **Terminal Island Station – Located at the Terminal Island Treatment Plant.** This site is surrounded by 3 terminals and has a potential to receive emissions from off-road equipment, on-road trucks, and rail. During onshore flows, this station measures marine aerosols and fresh emissions from several nearby diesel-fired sources (trucks, trains, and ships). During offshore flows, this station measures aged urban emissions and Port emissions.
- **Outer Harbor Station – Located at Berth 47 in the Port Outer Harbor.** This station measures aged urban and Port emissions and marine aerosols during onshore flows and aged urban emissions and fresh Port emissions during offshore flows.
- **Wilmington Community Station – Located at the Saints Peter and Paul School.** This station measures aged urban emissions during offshore flows and a combination of marine aerosols, aged urban emissions, and fresh

emissions from Port operations during onshore flows. This station also provides information on the relative strengths of these source combinations.

Table 3.2-2. Maximum Pollutant Concentrations from the Port Stations

Pollutant	*Averaging Period*	*State Standard*	*Federal Standard*	*Year*	*Maximum Concentrations*			
					San Pedro Community Station	*Terminal Island Station*	*Outer Harbor Station*	*Wilmington Community Station*
Ozone (ppm)	1 hour	0.09	N/A	2009	0.081	0.081	0.097	0.085
				2010	0.083	0.077	0.098	0.073
				2011	0.095	0.077	0.086	0.083
	8 hours	0.07	0.075	2009	0.064	0.071	0.071	0.063
				2010	0.064	0.062	0.076	0.069
				2011	0.072	0.062	0.070	0.060
CO (ppm)	1 hour	20	35	2009	2.700	2.500	2.000	5.300
				2010	2.200	1.900	1.900	4.600
				2011	5.700	7.900	3.400	11.300
	8 hours	9.0	9.0	2009	2.557	1.543	1.150	2.817
				2010	1.386	1.250	1.657	2.686
				2011	1.829	1.257	1.125	3.338
NO_2 (ppm)	1 hour	0.18	0.100	2009	0.095	0.103	0.085	0.095
				2010	0.105	0.105	0.073	0.098
				2011	0.083	0.091	0.093	0.095
SO_2 (ppm)	1 hour	0.25	N/A	2009	0.042	0.104	0.040	0.040
				2010	0.056	0.059	0.052	0.035
				2011	0.180	0.067	0.079	0.142
	24 hours	N/A	0.14 (or 0.03 annual arithmetic mean)	2009	0.011	0.026	0.016	0.012
				2010	0.010	0.024	0.012	0.012
				2011	0.014	0.015	0.006	0.010
PM_{10} ($\mu g/m^3$)	24 hours	50	150	2009	88.80	187.10	105.30	190.80
				2010	71.80	73.30	86.90	105.0
				2011	74.20	80.00	100.30	76.20
$PM_{2.5}$ ($\mu g/m^3$)	24 hours	No Separate Standard	35	2009	60.20	59.70	56.60	69.90
				2010	42.30	41.20	40.20	48.00
				2011	41.80	46.00	33.40	62.70

ppm = parts per million
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
$\mu g/m^3$ = micrograms per cubic meter
N/A = Not Applicable

Source: San Pedro Bay Ports Clean Air Action Plan, Air Quality Monitoring website, http://caap.airsis.com/HistoricalSummary.aspx, accessed November 9, 2011.

The SCAQMD also maintains a network of air quality monitoring stations within its jurisdiction. The project site is located within Source Receptor Area (SRA) 4, South Coastal Los Angeles County. The nearest air monitoring station to the

project area within SRA 4 is the North Long Beach station (3648 North Long Beach Boulevard, Long Beach, CA 90807). The North Long Beach air monitoring station monitors O_3, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$. Table 3.2-3, *Maximum Pollutant Concentrations from the North Long Beach Station*, presents the maximum pollutant concentrations measured at the North Long Beach Station for the 3 most recent years of data (2008 to 2010).

Table 3.2-3. Maximum Pollutant Concentrations from the North Long Beach Station

Pollutant	*Averaging Period*	*State Standard*	*Federal Standard*	*Year*	*Maximum Concentrations*[1]
Ozone (ppm)[2]	1 hour	0.09	N/A	2008	0.093
				2009	0.089
				2010	0.101
	8 hours	0.07	0.075	2008	0.074
				2009	0.067
				2010	0.084
CO (ppm)[2]	1 hour	20	35	2008	3.300
				2009	2.900
				2010	3.200
	8 hours	9.0	9.0	2008	2.490
				2009	2.170
				2010	2.080
NO_2 (ppm)[2]	1 hour	0.18	0.100	2008	0.125
				2009	0.111
				2010	0.093
SO_2 (ppm)[2]	1 hour	0.25	N/A	2008	0.012
				2009	0.005
				2010	0.006
	24 hours	N/A	0.14 (or 0.03 annual arithmetic mean)	2008	0.012
				2009	0.005
				2010	0.006
PM_{10} ($\mu g/m^3$)[2,3,4]	24 hours	50	150	2008	62.00
				2009	62.00
				2010	44.00
$PM_{2.5}$ ($\mu g/m^3$)[2,4]	24 hours	No Separate Standard	35	2008	57.20
				2009	63.00
				2010	35.00

ppm = parts per million
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
$\mu g/m^3$ = micrograms per cubic meter
N/A = Not Applicable

Notes:
1. Maximum concentration is measured over the same period as the California Standard.
2. Measurements taken at the North Long Beach Monitoring Station located at 3648 North Long Beach Boulevard, Long Beach, California 90807.
3. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
4. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

Source: California Air Resources Board, *ADAM Air Quality Data Statistics*, http://www.arb.ca.gov/adam/welcome.html, accessed on November 9, 2011.

Both the California Air Resources Board (CARB) and EPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are "nonattainment," "attainment," and "unclassified". "Unclassified" is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of the nonattainment designation, called "nonattainment-transitional." The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used to indicate the quality of ambient air. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel particulate matter (DPM) differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for DPM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of DPM.

The Multiple Air Toxics Exposure Study III (MATES III) is a monitoring and evaluation study conducted by the SCAQMD. The MATES III study consists of a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk throughout the SCAB. The study concentrates on the carcinogenic risk from exposure to air toxics. Ten monitoring locations measured toxic air contaminants (over 30 air pollutants) once every three days for two years.

The carcinogenic risk from air toxics in the SCAB, based on average concentrations at the fixed monitoring locations, is about 1,200 per million. This risk refers to the expected number of additional cancers in a population of one million individuals that are exposed over a 70-year lifetime. Under the MATES

III methodology, approximately 94 percent of the risk is attributed to mobile source emissions, and approximately six percent is attributed to stationary sources. The MATES III Study found a decreasing risk for air toxics exposure compared to previous MATES studies. Additionally, the MATES III study found an estimated SCAB-wide population-weighted risk reduced by eight percent from the MATES II Study. Based on modeling results, the air toxics risk ranged from 1,100 to 3,700 in a million at the Port. Although the Port is located in an area of the SCAB with some of the higher concentrations of air toxics, these concentrations are declining and conditions are continuing to improve.

Minor sources of TACs near the project could include but are not limited to: gasoline dispensing stations, dry cleaning establishments, printing operations, auto body coating operations, ships, trucks, cargo handling equipment, and locomotives. Major highways and roadways are also considered sources of TAC emissions, associated with the presence of DPM emissions from vehicle exhaust. Highway 47/Interstate 710 is located approximately 0.46 miles north of the project site; Interstate 110 is approximately 0.80 miles northwest of the project site; Highway 213 (Western Avenue) is located approximately 1.80 miles west of the project site; and Highway 103 is located approximately 2.5 miles northeast of the project site.

Odors

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

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

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity

weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human. The proposed project is not considered a major source of odors (e.g., wastewater treatment plant, landfill). In addition, the proposed project does not propose siting sensitive receptors.

Sensitive Receptors

The location of a development project is a major factor in determining whether it will result in localized air quality impacts. The potential for adverse air quality impacts increases as the distance between the source of emissions and members of the public decreases. Impacts on sensitive receptors are of particular concern. Sensitive receptors are facilities that house or attract children, the elderly, and people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors. Residential uses are considered sensitive because people in residential areas are often at home for extended periods of time, so they can be exposed to pollutants for extended periods. Recreational areas are considered moderately sensitive to poor air quality because vigorous exercise associated with recreation places a high demand on the human respiratory function.

Air quality problems arise when sources of air pollutants and sensitive receptors are located near one another. CARB notes that a sensitive receptor in close proximity to a congested intersection or roadway with high levels of emissions from motor vehicles, with high concentrations of CO, fine PM, or TACs, is a common concern. A sensitive receptor close to a source of high levels of nuisance dust emissions is also a concern.

Sensitive uses within the immediate project area include residential uses approximately 230 feet to the west; World Tots Los Angeles preschool approximately 215 feet to the west; Mount Sinai Baptist Church approximately 2,000 feet to the west; Port of Los Angeles High School approximately 1,240 feet to the southwest; Anderson Memorial Senior Citizen Center approximately 2,430 feet to the southwest; Merry-Go-Round Nursery approximately 2,650 feet to the southwest; and First Mexican Baptist Church approximately 1,500 feet to the northwest.

Greenhouse Gases

The natural process through which heat is retained in the troposphere is called the "greenhouse effect."[2] The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long wave radiation; and GHG in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This "trapping" of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

The most abundant GHGs are water vapor and carbon dioxide (CO_2). Many other trace gases have greater ability to absorb and re-radiate long wave radiation; however, these gases are not as plentiful. For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-radiate long wave radiation.

GHGs normally associated with the proposed project include the following:[3]

- *Water Vapor (H_2O)*. Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively.

  The primary human related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a GWP for water vapor.

- *Carbon Dioxide (CO_2)*. Carbon dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of CO_2 in the atmosphere has increased 35 percent.[4]

[2] The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers.

[3] All Global Warming Potentials are given as 100 year GWP. Unless noted otherwise, all Global Warming Potentials were obtained from the Intergovernmental Panel on Climate Change. Climate Change (Intergovernmental Panel on Climate Change, *Climate Change, The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*, 1996).

[4] United States Environmental Protection Agency, *Inventory of United States Greenhouse Gas Emissions and Sinks 1990 to 2004*, April 2006.

Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining GWPs for other GHGs.

- *Methane (CH_4)*. Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation. Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of CH_4 is 21.

- *Nitrous Oxide (N_2O)*. Nitrous oxide is produced by both natural and human related sources. Primary human related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of N_2O is 310.

- *Hydrofluorocarbons (HFCs)*. Hydrofluorocarbons are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing, as the continued phase out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The GWP of HFCs range from 140 for HFC-152a to 11,700 for HFC-23.[5]

- *Perfluorocarbons (PFCs)*. Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semi conductor manufacturing. Perfluorocarbons are potent GHGs with a GWP several thousand times that of CO_2, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).[6] The GWP of PFCs range from 6,500 to 9,200.

- *Sulfur hexafluoride (SF_6)*. Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the IPCC with a GWP of 23,900. However, its global warming contribution is not as high as the GWP would indicate due to its

[5] United States Environmental Protection Agency, *High GWP Gases and Climate Change*, June 22, 2010. http://www.epa.gov/highgwp/scientific.html#hfc.

[6] United States Environmental Protection Agency, *High GWP Gases and Climate Change*, June 22, 2010. http://www.epa.gov/highgwp/scientific.html#pfc.

low mixing ratio compared to CO_2 (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm], respectively).[7]

In addition to the 6 major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified as stratospheric ozone depletors; therefore, their gradual phase out is currently in effect. The following is a listing of these compounds:

- *Hydrochlorofluorocarbons (HCFCs)*. Hydrochlorofluorocarbons are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. GWPs of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.[8]

- *1,1,1 trichloroethane*. 1,1,1 trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. The GWP of methyl chloroform is 110 times that of CO_2.[9]

- *Chlorofluorocarbons (CFCs)*. Chlorofluorocarbons are used as refrigerants, cleaning solvents, and aerosols spray propellants. Chlorofluorocarbons were also part of the EPA's Final Rule (57 FR 3374) for the phase out of O_3 depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere contributing to the greenhouse effect. Chlorofluorocarbons are potent GHGs with GWPs ranging from 4,600 for CFC 11 to 14,000 for CFC 13.[10]

[7] United States Environmental Protection Agency, *High GWP Gases and Climate Change*, June 22, 2010. http://www.epa.gov/highgwp/scientific.html#sf6.

[8] United States Environmental Protection Agency, *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone Depleting Substances*, dated November 7, 2006. http://www.epa.gov/EPA-AIR/1996/January/Day-19/pr-372.html.

[9] Ibid.

[10] United States Environmental Protection Agency, *Class I Ozone Depleting Substances*, March 7, 2006. http://www.epa.gov/ozone/ods.html.

3.2.3 Applicable Regulations

Air Quality

As stated previously, the project site is located within the SCAB. Air quality at the proposed project site is regulated by the EPA, CARB, SCAQMD, the City of Los Angeles, and the Port of Los Angeles. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

Concentrations of several air pollutants (i.e., O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead) indicate the quality of ambient air and are therefore the premise of air quality regulations. Because these pollutants are the most prevalent air pollutants known to be harmful to human health, they are commonly referred to as "criteria air pollutants." Their effects on human health have been studied in depth and their criteria for affecting health have been documented. Acceptable levels of exposure to criteria air pollutants have been determined and ambient standards have been established for them.

Air quality regulations also focus on TACs, or in federal parlance, hazardous air pollutants (HAPs). In general, for those TACs that may cause cancer, all concentrations present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. EPA and CARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology (MACT and BACT) for toxics to limit emissions. These statutes and regulations, in conjunction with additional rules set forth by SCAQMD, establish the regulatory framework for TACs.

Greenhouse Gas Emissions and Global Climate Change

Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

3.2.3.1 Federal Regulations

Criteria Air Pollutants

At the federal level, the EPA implements the national air quality programs. EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA), enacted in 1970. The most recent major amendments were made by Congress in 1990.

The FCAA requires the EPA to establish national ambient air quality standards (NAAQS) for criteria pollutants. As shown in Table 3.2-4, *National and California Ambient Air Quality Standards,* the EPA has established primary and secondary NAAQS for the following criteria air pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The primary standards protect public health and the secondary standards protect public welfare. The FCAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The EPA reviews all state SIPs to determine whether they conform to the mandates of the FCAA and its amendments and whether implementing them will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan that imposes additional control measures may be prepared for the nonattainment area. If the state fails to submit an approvable SIP or to implement the plan within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basins.

In response to the SIP requirements, the SCAQMD, CARB, and SCAG have jointly developed the *2007 Air Quality Management Plan (AQMP) for the South Coast Air Basin*, to demonstrate attainment of the $PM_{2.5}$ and 8-hour ozone NAAQS exceeded in the Basin. The 2007 AQMP/SIP addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools.

To reduce emissions from off-road diesel equipment, the EPA established a series of increasingly strict emission standards for new off-road diesel engines. Tier 1 standards were phased in from 1996 to 2000 (year of manufacture); Tier 2 standards were phased in from 2001 to 2006; and Tier 3 standards were phased in from 2006 to 2008. Tier 4 standards, which likely will require add-on emission control equipment to attain them, will be phased in from 2008 to 2015. These standards apply to construction equipment and terminal equipment.

Table 3.2-4. National and California Ambient Air Quality Standards

Pollutant	*Averaging Time*	*California*[1]		*Federal*[2]	
		Standard[3]	*Attainment Status*	*Standards*[4]	*Attainment Status*
Ozone (O_3)	1 Hour	0.09 ppm (180 $\mu g/m^3$)	Nonattainment	N/A[5]	N/A[5]
	8 Hour	0.070 ppm (137 $\mu g/m^3$)	Unclassified	0.075 ppm (147 $\mu g/m^3$)	Nonattainment
Particulate Matter (PM_{10})	24 Hour	50 $\mu g/m^3$	Nonattainment	150 $\mu g/m^3$	Nonattainment
	Annual Arithmetic Mean	20 $\mu g/m^3$	Nonattainment	N/A[7]	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	Nonattainment	35 $\mu g/m^3$	Nonattainment
	Annual Arithmetic Mean	12 $\mu g/m^3$	Nonattainment	15.0 $\mu g/m^3$	Nonattainment
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Attainment
	1 Hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen Dioxide (NO_2)[6]	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)	N/A	53 ppb (100 $\mu g/m^3$)	Attainment
	1 Hour	0.18 ppm (339 $\mu g/m^3$)	Attainment	100 ppb (188 $\mu g/m^3$)	N/A
Lead (Pb)	30 day average	1.5 $\mu g/m^3$	Attainment	N/A	N/A
	Calendar Quarter	N/A	N/A	1.5 $\mu g/m^3$	Attainment
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 $\mu g/m^3$)	Attainment	N/A	Attainment
	3 Hour	N/A	N/A	N/A	Attainment
	1 Hour	0.25 ppm (655 $\mu g/m^3$)	Attainment	75 ppb (196 $\mu g/m^3$)	N/A
Visibility-Reducing Particles	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	No Federal Standards	
Sulfates	24 Hour	25 µg/m3	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m3)	Unclassified		

$\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable.

Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter-PM_{10} and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. In 1990, CARB identified vinyl chloride as a toxic air contaminant, but determined that there was not sufficient available scientific evidence to support the identification of a threshold exposure level. This action allows the implementation of health-protective control measures at levels below the 0.010 ppm ambient concentration specified in the 1978 standard.
2. National standards (other than ozone, particulate matter and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. EPA also may designate an area as *attainment/unclassifiable*, if: (1) it has monitored air quality data that show that the area has not violated the ozone standard over a three-year period; or (2) there is not enough information to determine the air quality in the area. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over the three years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. The Federal 1-hour ozone standard was revoked on June 15, 2005 in all areas except the 14 8-hour ozone nonattainment Early Action Compact (EAC) areas.
6. The Nitrogen Dioxide ambient air quality standard was amended in February 22, 2007 to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm.
7. The EPA revoked the annual PM_{10} standard in 2006 (effective December 16, 2006).

Source: California Air Resources Board and United States Environmental Protection Agency, September 8, 2010.

The EPA has also established Tier 2, Tier 3, and Tier 4 marine engine standards for harbor craft, which have been phased in from 2004 to 2007 for Tier 2, from 2009 to 2012 for Tier 3, and beginning in 2014 for Tier 4 (year of manufacture), depending on engine size. To reduce emissions from on-road, heavy-duty diesel trucks, the EPA established a series of increasingly strict emission standards for new engines, starting in 1988. The EPA promulgated the final and cleanest standards with the 2007 Heavy-Duty Highway Rule. Also, the Highway Diesel Fuel Rule sets sulfur limitations for on-road diesel fuel. EPA has also adopted regulations for new and re-manufactured locomotives and for marine diesel engines in U.S. flagged ocean-going vessels.

Hazardous Air Pollutants

The EPA has programs for identifying and regulating HAPs. Title III of the CAAA directed to issue 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 emissions standards are to be issued in two phases. In the first phase (1992-2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable and are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001-2008), the EPA is required to

issue emissions standards based on health risks where the standards are deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The FCAAA also requires the EPA to issue 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 requires the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

Greenhouse Gas Emissions

The federal government is extensively engaged in international climate change activities in areas such as science, mitigation, and environmental monitoring. The EPA actively participates in multilateral and bilateral activities by establishing partnerships and providing leadership and technical expertise. Multilaterally, the United States is a strong supporter of activities under the United Nations Framework Convention on Climate Change (UNFCCC) and the IPCC.

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus around the evidence that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

In September 2009, the EPA finalized a GHG reporting and monitoring system that began on January 1, 2010. In general, this national reporting requirement will provide the EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons (MT) or more of CO_2 per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective emissions reduction strategies. This new program covers approximately 85 percent of the nation's GHG emissions and applies to approximately 10,000 facilities. The reporting system is intended to provide a better understanding of where GHGs are coming from and will guide development of the best possible policies and programs to reduce emissions.

The EPA has addressed the 2007 Supreme Court decision in *Massachusetts v. EPA* (Supreme Court Case 05-1120) regarding the EPA's obligation to make an endangerment finding under Section 202(a) of the Federal Clean Air Act (FCAA) with respect to GHGs. *Massachusetts v. EPA* was argued before the United States Supreme Court on November 29, 2006. Under the FCAA, the EPA is now obligated to issue rules regulating global warming pollution from all major sources. In April 2009, the EPA concluded that GHGs are a danger to public health and welfare, establishing the basis for GHG regulation. However, as of December 2011 there are no federal regulations or policies regarding GHG emissions applicable to the proposed project.

3.2.3.2 State Regulations

Criteria Air Pollutants

CARB coordinates and oversees the state and local programs for controlling air pollution in California and implements the California Clean Air Act (CCAA), adopted in 1988. The CCAA requires the CARB to establish California ambient air quality standards (CAAQS) (refer to Table 3.2-4). CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources. CARB also oversees local air district compliance with federal and state laws, approving local air quality plans, submitting SIPs to the EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

CARB has set stringent in-use heavy-duty trucks and idling regulations, sulfur limitations for diesel fuel in on-road and off-road vehicles, in-use off-road vehicles regulations, and other regulations affecting ocean-going vessels and harbor craft. Additionally, CARB has approved the *Emission Reduction Plan for Ports and Goods Movement in California*, which proposes measures to reduce emissions from the main sources associated with port cargo-handling activities. CARB has also approved the Ocean-Going Vessel Auxiliary Diesel Engine Regulation, limits the usage of auxiliary engines during hotelling using shore power or other technologies. CARB has also adopted a regulation to require the use of marine fuel oil with limited sulfur content for auxiliary and main engines

and auxiliary boilers. For commercial harbor craft, CARB has adopted low-sulfur fuel requirements as well as regulation affecting both new and in-use harbor vessels. CARB approved the Regulation for Mobile Cargo-Handling Equipment at Ports and Intermodal Rail Yards in 2006, which is designed to use BACT to reduce emissions from the equipment at ports. The Statewide Portable Equipment Registration Program establishes a uniform program to regulate portable engines and portable engine-driven equipment units.

Toxic Air Contaminants

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

Once a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there no safe threshold exists, the measure must incorporate BACT to minimize emissions.

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

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, off-road diesel equipment (e.g., tractors, generators), ships, cargo-handling equipment, trucks, and locomotives. Recent milestones for transportation-related mobile sources include a low-sulfur diesel fuel requirement and tighter emissions standards for heavy-duty diesel trucks and off-road diesel equipment nationwide. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, DPM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be 75 percent less than the estimated year-2000 level in 2010 and 85 percent less in 2020.

Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* 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 keep children and other sensitive populations out of harm's way. A number of comments on the handbook were provided to CARB by air districts, other agencies, real estate representatives, and others. The comments included concern over whether CARB was playing a role in local land use planning, the validity of relying on static air quality conditions over the next several decades in light of technological improvements, and support for providing information that can be used in local decision making.

Greenhouse Gas Emissions

CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA, which was adopted in 1988.

Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Statewide and local initiatives include Assembly Bill (AB) 1493, AB 32, Executive Order (EO) S-3-05, EO S-1-07, EO S-14-08, Senate Bill (SB) 1078, SB 1368, SB 375, and SB 97. Additionally, CARB adopted its Scoping Plan on December 11, 2008, which functions as a roadmap of CARB's plans to achieve

GHG reductions in California required by AB 32 through subsequently enacted regulations.[11]

The Climate Registry

The Climate Registry is "a nonprofit collaboration among North American states, provinces, territories and Native Sovereign Nations that sets consistent and transparent standards to calculate, verify and publicly report GHG emissions into a single registry." The Climate Registry is committed to:

- Utilizing best practices in greenhouse gas emissions reporting
- Establishing a common data infrastructure for voluntary and mandatory reporting and emissions reduction programs
- Minimizing the burden on Members, Directors and Native Sovereign Nations
- Providing an opportunity for Members to establish an emissions baseline and document early action
- Developing a recognized platform for credible and consistent greenhouse gas emissions reporting
- Promoting full and public disclosure of greenhouse gas emissions while respecting business confidentiality

In California, the GHG reporting organization was The California Climate Action Registry (CCAR), established in 2000 by the California Legislature. CCAR was a private non-profit organization that served as a voluntary GHG registry to protect and promote early actions to reduce GHG emissions by organizations. CCAR members voluntarily measured, verified, and publicly reported their GHG emissions. The Los Angeles Harbor Department (LAHD) was a voluntary member of CCAR since March 29, 2006 and submitted GHG inventories of LAHD-controlled activities. The CCAR transitioned to The Climate Registry in 2009.

California Climate Adaptation Strategy

The California Climate Adaptation Strategy (CAS) was released in 2009 as direct response to then-Governor Schwarzenegger's Executive Order S-13-08 (November 2008) which specifically asked the State's Natural Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. The California Natural Resources Agency worked with other state agencies in the creation of the strategy including Environmental Protection; Business, Transportation and

[11] California Air Resources Board, *Climate Change Scoping Plan, A Framework for Change*, December 2008.

Housing; Health and Human Services; and the Department of Agriculture. This report focuses on sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. The CAS summarizes the best known science on climate change impacts in seven specific sectors and provides recommendations on how to manage against those threats.

The California Natural Resources Agency and the CEC have recently released Cal-Adapt, a web-based tool for climate change adaptation. The tool enables city and county planners, government agencies, and the public to identify potential climate change risks in specific areas throughout California. Cal-Adapt combines volumes of climate change research and presents it in a visually graphic, accessible, and intuitive format intended to benefit local planning efforts as well as inform California citizens of potential climate change impacts. This tool fulfills recommendations made in the California Climate Adaptation Strategy to provide planners with detailed information regarding potential sea-level rise, wildfire dangers, temperature changes, and fluctuations in snowpack in specific areas, which will help inform how to respond to those impacts.[12]

3.2.3.3 Regional and Local Regulations

South Coast Air Quality Management District

The SCAQMD is one of 35 air quality management districts that have prepared AQMP's to demonstrate attainment of NAAQS exceeded in their region. The *2007 Air Quality Management Plan for the South Coast Air Basin* (2007 AQMP) relies on a multi-level partnership of governmental agencies at the federal, state, regional, and local level. The 2007 AQMP proposes policies and measures to achieve federal and state standards for improved air quality in the SCAB and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under SCAQMD jurisdiction. The 2007 AQMP includes new information on key elements such as:

- Current air quality;
- Improved emission inventories, especially significant increase in mobile source emissions;
- An overall control strategy comprised of: Stationary and Mobile Source Control Measures, SCAQMD, State and Federal Stationary and Mobile Source Control Measures, and the Southern California Association of Governments Regional Transportation Strategy and Control Measures;

[12] California Climate Change Portal, *California Climate Adaptation Strategy*, http://www.climatechange.ca.gov/adaptation/, 2009.

- New attainment demonstration for $PM_{2.5}$ and O_3;
- Milestones to the Federal Reasonable Further Progress Plan; and
- Preliminary motor vehicle emission budgets for transportation conformity purposes.

The SCAB is currently in non-attainment for ozone and particulate matter. The 2007 AQMP states that "the overall control strategy for this Final Plan is designed to meet applicable federal and state requirements, including attainment of ambient air quality standards. The focus of the 2007 AQMP is to demonstrate attainment of the federal $PM_{2.5}$ ambient air quality standard by 2015 and the federal 8-hour O_3 standard by 2024, while making expeditious progress toward attainment of state standards. However, the proposed strategy does not attain the previous federal 1-hour O_3 standard by 2010 as previously required prior to the recent change in federal regulations."

In planning for attainment, SCAQMD develops Rules and Regulations to regulate sources of air pollution within the SCAB. The SCAQMD rules and regulations most pertinent to the proposed project are listed below.[13]

SCAQMD Rule 402 - Nuisance. This rule prohibits the discharge of air contaminants or other material which:

- cause injury, detriment, nuisance, or annoyance to any considerable number of people, or
- endanger the comfort, repose, health, or safety of any such persons or the public, or
- cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 - Fugitive Dust. This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remains visible beyond the emission source property line. During construction of the proposed project or one of the alternatives, best available control measures identified in the rule would be required to minimize fugitive dust emissions from proposed earth-moving and grading activities. These measures would include site pre-watering and re-watering as necessary to maintain sufficient soil moisture content.

Additional requirements apply to construction projects on property with 50 or more acres of disturbed surface area, or for any earth-moving operation with a daily earth-moving or throughput volume of 5,000 cubic yards or more 3 times

[13] South Coast Air Quality Management District, *SCAQMD Rules and Regulations,* http://www.aqmd.gov/rules/reg/reg04_tofc.html, accessed June 21, 2011.

during the most recent 365-day period. These requirements include submittal of a dust control plan, maintaining dust control records, and designating a SCAQMD-certified dust control supervisor.

SCAQMD Rule 1403 - Asbestos Emissions from Demolition/Renovation Activities. The purpose of this rule is to limit emissions of asbestos, a toxic air contaminant, from structural demolition/renovation activities. The rule requires people to notify the SCAQMD of proposed demolition/renovation activities and to survey these structures for the presence of asbestos-containing materials. The rule also includes notification requirements for any intent to disturb asbestos containing materials; emission control measures; and asbestos-containing material removal, handling, and disposal techniques. All proposed structural demolition activities associated with proposed project construction would need to comply with the requirements of Rule 1403.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide for the region, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation control portions of the 2007 AQMP. SCAG is responsible under the FCAA for determining conformity of projects, plans, and programs with the SCAQMD.

San Pedro Bay Ports Clean Air Action Plan

The San Pedro Bay Ports Clean Air Action Plan (CAAP) was approved in November 2006 by governing boards of the Ports of Los Angeles and Long Beach. This is the most comprehensive strategy to cut air pollution and reduce health risks ever produced for a global seaport complex. The Ports have committed to an aggressive plan to reduce pollution by at least 45 percent within five years. In moving ahead with the plan, commissioners approved amendments directing staff to develop:

- A truck replacement program to phase out all "dirty" diesel trucks from the ports within five years, replaced with a new generation of clean or retrofitted vehicles and driven by people who earn at least the prevailing wage.
- Aggressive milestones with measurable goals for air quality improvements.
- Recommendations to eliminate emissions of ultra-fine particulates.
- A technology advancement program to reduce emissions, including greenhouse gases.
- A public participation process with environmental organizations and the business community.

The CAAP was created with the cooperation and participation of the SCAQMD, CARB, and EPA. Significant progress was made in the first 4 years on implementation. The CAAP was updated in 2010 and includes new goals for curbing Port-related air pollution.

The most significant addition to the Draft CAAP Update is the San Pedro Bay Standards, which establish long-term goals for emissions and health-risk reductions for the ports. The Draft CAAP Update also identifies milestone dates and forecasts potential emissions reductions and budget commitments for the next five years, through the end of 2013. Finally, the CAAP Update is consistent with the Ports' pledge in the original CAAP that the plan would be updated periodically to make sure it remains current and forward-thinking.

The CAAP goals for 2014 include cutting Port-related DPM emissions by 72 percent, NO_X emissions by 22 percent, and SO_X emissions by 93 percent below 2005 levels. Goals for 2023 include cutting DPM emission by 77 percent, NO_X emissions by 59 percent, and SO_X emissions by 93 percent. Further decreases including reducing the population-weighted residential cancer risk of Port-related DPM emissions by 85 percent are targeted by 2020. The CAAP goals are closely tied into the SCAQMD's plan to meet federal air quality standards.[14] CAAP Control Measure HC1 (performance standards for harbor craft) is applicable to the project.

Port of Los Angeles Sustainable Construction Guidelines

In February 2008, the LAHD Board of Harbor Commissioners adopted the Los Angeles Harbor Department Sustainable Construction Guidelines for Reducing Air Emissions (LAHD Construction Guidelines). These guidelines will be used to establish air emission criteria for inclusion in construction bid specifications.

[14] The Port of Los Angeles, *San Pedro Bay Ports Clean Air Action Plan*, http://www.portoflosangeles.org/environment/caap.asp, October 2010.

The LAHD Construction Guidelines were revised in November 2009 and reinforce and require sustainability measures during performance of the contracts, balancing the need to protect the environment, be socially responsible, and provide for the economic development of the Port. Future Board resolutions will expand the guidelines to cover other aspects of construction, as well as planning and design. These guidelines support the forthcoming Port Sustainability Program.

The intent of the LAHD Construction Guidelines is to facilitate the integration of sustainable concepts and practices into all capital projects at the Port and to phase in the implementation of these procedures in a practical yet aggressive manner. Significant features of the LAHD Construction Guidelines address Best Management Practices (BMPs), vessels, harbor craft, dredging equipment, on-road trucks, construction equipment, and fugitive dust control.

Clean Truck Program

The Port's Clean Truck Program (CTP) is a major element of the CAAP which targets the major sources of air pollution in the Port (ships, trains, trucks, cargo handling equipment and harbor craft). This progressive ban on polluting trucks improves air quality. So far the following actions have been taken:

- October 1, 2008: All pre-1989 trucks were banned from entering the Port.
- January 1, 2010: All pre-1993 trucks were banned from entering the Port in addition to all 1994-2003 trucks that have not been retrofitted.
- January 1, 2012: All trucks that do not meet the 2007 Federal Clean Truck Emission Standards will be banned from the Ports.[15]

Green LA: An Action Plan to Lead the Nation in Fighting Global Warming

In May 2007, the City of Los Angeles adopted Green LA: An Action Plan to Lead the Nation in Fighting Global Warming (Green LA), which is a plan with the purpose of reducing GHG emissions. The goal of Green LA is to reduce CO_2 emissions 35 percent below 1990 levels by 2030. Green LA directed the Port to develop an individual Climate Action Plan (CAP), consistent with the goals of Green LA, to explore opportunities to reduce GHGs from municipal operations. The CAP outlines the specific steps that the Port has taken (and plans to take) to reduce the effects of operations within the LAHD have on global climate change. The CAP was developed to reduce emissions from major tenant operations such

[15] Port of Los Angeles, *About the Port of Los Angeles Clean Truck Program,* http://portoflosangeles.org/ctp/idx_ctp.asp, accessed June 21, 2011.

as operation of heavy duty vehicles/trucks, ocean-going vessels (OGV), harbor craft, cargo handling equipment, and railroad locomotives. The CAP includes several mitigation measures that have the potential to reduce GHG emissions.

3.2.4 Impact Analysis

This section discusses the potential air quality and greenhouse gas emissions associated with the development of the proposed project. The impact analysis is based on the requirements CEQA relative to the assessment of air quality and GHG impacts associated with proposed project elements, and mitigation measures are provided, where appropriate.

3.2.4.1 Methodology

Construction-Related Criteria Pollutants

Construction of the proposed project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the project site. In addition, fugitive dust emissions would result from earthwork and construction activities.

Mass daily emissions during construction were calculated using the California Emissions Estimator Model (CalEEMod) version 2011.1.1, which is an emissions estimation/evaluation model developed in conjunction with SCAQMD and other California Air Districts. CalEEMod was used to assist in quantifying emissions from construction activities for the project. Project construction emissions are associated with construction equipment, construction-related vehicle trips, off-gassing emissions from painting, and transport of the USS *Iowa*. Phase 1 of the proposed project includes the assembly of temporary prefabricated structures. Phase 1 would primarily require the use of hand tools only and limited construction equipment is anticipated to be required. Phase 2 of the project includes the construction of the 33,800 square foot Visitor Center. Phase 2 (Visitor Center construction) would be contingent upon available funding. Therefore, this analysis assumes the Visitor Center would be constructed in 2012 (worst case scenario as emissions would be higher than any future year). A complete listing of the construction equipment by phase and construction phase duration assumptions used in this analysis is included within the CalEEMod output sheets that are provided in Appendix D, *Air Quality/Greenhouse Gas Modeling Data*.

Operational Criteria Pollutants

Operation of the project has the potential to create air quality impacts primarily from mobile vehicular traffic. The CalEEMod software was also used to compile

the mass daily operational emissions estimates from mobile (vehicular traffic) sources that would occur during long-term project operations.

It is anticipated that the proposed project would attract approximately 430,000 visitors during the first year of operation, stabilizing at approximately 386,000 during subsequent years. According to the *Traffic Study for the USS Iowa Project Environmental Impact Report* (prepared by Fehr and Peers, dated December 2011), the project would result in a maximum of 1,408 daily trips during spring of the opening year, and would result in a maximum of 1,284 daily trips during spring of the subsequent years. Therefore, 1,408 daily trips were utilized for the purposes of this analysis as a worst-case scenario. The Traffic Study claims spring to be the worst case scenario due to the peak of the cruise ship season. Emissions from project-generated vehicle trips were calculated by the CalEEMod model. Stationary-source and area source emissions were also calculated using CalEEMod default assumptions. The CalEEMod model outputs are provided in Appendix D.

Localized Significance Thresholds

As part of the SCAQMD's environmental justice program, attention was focused on localized effects of air quality. Emissions were evaluated using SCAQMD localized significance threshold (LST) methodology and mass rate look-up tables. The LSTs represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant. The LST methodology is described in *Final Localized Significance Threshold Methodology* (updated July 2008) by the SCAQMD and is available at the SCAQMD website.[16] The SCAQMD periodically updates the lookup tables to reflect current monitoring data, with the last update occurring on October 21, 2009.

The LST mass rate look-up tables provided by the SCAQMD allow one to determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts. If the calculated on-site emissions for the proposed construction or operational activities are below the LST emission levels found on the LST mass rate look-up table, then the proposed construction or operation activity would not result in a significant impact on local air quality.

The LST mass rate look-up tables are applicable to NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs are derived based on the location of the activity (i.e., the source/receptor

[16] South Coast Air Quality Management District, *Localized Significance Thresholds*, October 21, 2009. http://aqmd.gov/ceqa/handbook/LST/LST.html.

area); the emission rates of NO_X, CO, PM_{10}, and $PM_{2.5}$; and the distance to the nearest exposed individual. This distance is based upon the uses around the project and the AAQS averaging times for the pollutants of concern. The shortest AAQS averaging time for CO and NO_2 are for one-hour and the nearest exposed individual is the location where a person could be expected to remain for 1-hour. The shortest averaging time for the PM_{10} and $PM_{2.5}$ AAQS is 24 hours and the nearest exposed individual is the location where a person could be expected to remain for 24-hours. Typically, this is the nearest residential use.

CO Hotspots

Motor vehicles are the primary source of pollutants within the project vicinity. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Carbon monoxide is produced in greatest quantities from vehicle combustion and is usually concentrated at or near ground level because it does not readily disperse into the atmosphere. Localized areas where ambient CO concentrations exceed state and/or federal standards are termed CO "hotspots." These hotspots would exceed the state ambient air quality 1-hour CO standard of 20 ppm or the 8-hour CO standard of 9.0 ppm. The federal 1- and 8-hour standards are 35 and 9 ppm, respectively. Thus, an exceedance condition would occur based on the state standards before the federal standards are exceeded. Therefore, exceedance of the state ambient air quality 1-hour standard or the 8-hour standard for CO would constitute a significant air quality impact. Potential air quality impacts to sensitive receptors are assessed through an analysis of localized CO concentrations.

Odor Impacts (Construction and Operations)

Potential odor impacts are evaluated by conducting a screening-level analysis followed by a more detailed analysis (i.e., dispersion modeling), as necessary. The screening-level analysis consists of reviewing the proposed project's site plan and project description to identify any new or modified odor sources. If it is determined that the proposed project would introduce a new odor source, or modify an existing odor source, then downwind sensitive receptor locations are identified and site-specific dispersion modeling is conducted to determine proposed project impacts.

Construction-Related GHG Emissions

Phase 1 would include the assembly of prefabricated structures which would involve the use of hand tools and not heavy-duty construction equipment which emit GHGs. Construction activities associated with the project would emit GHGs during the construction of the Visitors Center during Phase 2. Construction emissions were calculated using CalEEMod. Like criteria pollutant emissions, the worst case scenario year 2012 was utilized for this analysis, as this

would represent the worst case GHG emissions during construction. Project construction emissions are associated with construction equipment, construction-related vehicle trips, and off-gassing emissions from painting. A complete listing of the construction equipment by phase and construction phase duration assumptions used in this analysis is included within the CalEEMod output sheets that are provided in Appendix D.

Operational GHG Emissions

GHG emissions from project operations were quantified in the CalEEMod model using project specific land use data, traffic, and CalEEMod defaults. Operational GHG emissions would be generated from mobile sources, area sources, energy consumption, solid waste generation, water consumption, and wastewater generation associated with the proposed project. Operational GHG emissions were calculated based upon the 33,800 square foot Visitor Center (to be constructed during construction Phase 2) and associated worst-case daily traffic.

3.2.4.2 Thresholds of Significance

Criteria Air Pollutants

In its *CEQA Air Quality Handbook* (November 1993), the SCAQMD has established significance thresholds to assess the impact of project related air pollutant emissions from construction and operations. Table 3.2-5, *SCAQMD Regional Pollutant Emission Thresholds of Significance*, presents the SCAQMD's significance thresholds. There are separate thresholds for short-term construction and long-term operational emissions. A project with daily emission rates below these thresholds is considered to have a less than significant effect on regional air quality.

Table 3.2-5. SCAQMD Regional Pollutant Emission Thresholds of Significance

Phase	*Pollutant (lbs/day)*					
	VOC	*NO_X*	*CO*	*SO_X*	*PM_{10}*	*$PM_{2.5}$*
Construction	75	100	550	150	150	55
Operation	55	55	550	150	150	55
CO = carbon monoxide; VOC = volatile organic compounds; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns						
Source: South Coast Air Quality Management District, *CEQA Air Quality Handbook,* November 1993.						

Localized Significance Thresholds

The LST methodology presents mass emission rates for project sizes of 1, 2, and 5 acres, and nearest receptor distances of 25, 50, 100, 200, and 500 meters. For project sizes between the values given, or with receptors at distances between the given distances, the methodology uses linear interpolation to determine the

thresholds. If receptors are within 25 meters of the site, the methodology document says that the threshold for the 25-meter distance should be used.

The nearest off-site location where a person could be for 1-hour is adjacent to the site (residential uses across Harbor Boulevard, approximately 230 feet [70 meters] west of the project site boundary). As the nearest receptor is 70 meters from the project site, the LSTs were linearly interpolated. The nearest off-site location where a person could be for 24-hours is the same as that for 1-hour. Based on these factors, the LST thresholds specific for the proposed project were calculated and are presented in Table 3.2-6, *Localized Significance Thresholds*. A project with daily emission rates below these thresholds is considered to have a less than significant effect on local air quality.

Table 3.2-6. Localized Significance Thresholds

Phase	*Localized Significance Threshold (lbs/day)*			
	NO_X	*CO*	*PM_{10}*	*$PM_{2.5}$*
Construction	62.00	945.40	19.40	7.00
Operation	82.80	1,339.20	6.60	2.80
CO = carbon monoxide; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns				
Source: South Coast Air Quality Management District, *Final Localized Significant Threshold Methodology*, revised July 2008.				

CO Hotspots

Potential air quality impacts to sensitive receptors are assessed through an analysis of localized CO concentrations. A project would result in CO hotspots if it would exceed the state ambient air quality 1-hour CO standard of 20 parts per million (ppm) or the 8-hour CO standard of 9.0 ppm. The federal 1- and 8-hour standards are 35 and 9 ppm, respectively. Thus, this analysis will be based upon the state standards, as they are more stringent. Therefore, an exceedance of the state ambient air quality 1-hour standard or the 8-hour standard for CO would constitute a significant air quality impact.

Greenhouse Gas Emissions

On December 5, 2008, the SCAQMD adopted GHG significance threshold for Stationary Sources, Rules, and Plans where the SCAQMD is lead agency. The threshold uses a tiered approach. The project is compared with the requirements of each tier sequentially and would not to result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact. Tier 2 excludes projects that are

consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. For industrial stationary source projects, the SCAQMD adopted a screening threshold of 10,000 MT carbon dioxide equivalents (CO_2eq) per year. This threshold was selected to capture 90 percent of the GHG emissions from these types of projects where the combustion of natural gas is the primary source of GHG emissions. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact. Tier 4 consists of three decision tree options.

Under the first option, the project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. Under the second option the project would be excluded if it had early compliance with AB 32 through early implementation of CARB's Scoping Plan measures. Under the third option, project would be excluded if it met sector based performance standards. However, the specifics of the Tier 4 compliance options were not adopted by the SCAQMD board in order to allow further time to develop the options and coordinate with CARB's GHG significance threshold development efforts. Tier 5 would exclude projects that implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level.

While not adopted by the SCAQMD Board, the guidance document prepared for the stationary source threshold also suggested the same tiered approach for residential and commercial projects with a 3,000 MT CO_2eq per year screening threshold. However, at the time of adoption of the industrial stationary source threshold, the SCAQMD felt additional analysis was required along with coordination with CARB's GHG significance threshold development efforts.

At the November 2009 meeting of the SCAQMD GHG working group, SCAQMD staff presented two options for screening thresholds for residential and commercial projects. The first option would have different thresholds for specific land uses. The proposed threshold for residential projects is 3,500 MT CO_2eq per year, the commercial threshold is 1,400 MT CO_2eq per year, and the mixed-use threshold is 3,000 MT CO_2eq per year. The second option would apply the 3,000 MT CO_2eq per year screening threshold for all commercial/residential projects. Lead agencies would be able to select either option. These thresholds are based on capturing 90 percent of the emissions from projects and requiring them to comply with the higher tiers of the threshold (i.e., performance requirements or GHG reductions outside of the project) to not result in a significant impact.

SCAQMD staff also presented updates for compliance options for Tier 4 of the significance thresholds. The first option would be a reduction of 23.9 percent in

GHG emissions over the base case. This percentage reduction represents the land use sector portion of the CARB Scoping Plan's overall reduction of 28 percent. This target would be updated as the AB 32 Scoping Plan is revised. The base case scenario for this reduction still needs to be defined. Residual emissions would need to be less than 25,000 MT CO_2eq per year to comply with the option. Staff proposed efficiency targets for the third option of 4.6 MT CO_2eq per year per service population (population employment) for project level analysis and 6.6 MT CO_2eq per year for plan level analyses. For project level analyses, residual emissions would need to be less than 25,000 MT CO_2eq per year to comply with this option.

At the most recent meeting of the SCAQMD GHG working group, SCAQMD staff recommended extending the 10,000 MT CO_2eq per year industrial project threshold for use by all lead agencies. The two options for land-use thresholds were reiterated with a recommendation that lead agencies use the second, 3,000 MT CO_2eq per year threshold for all non-industrial development projects. Staff indicated that they would not be recommending a specific approach to address the first option of Tier 4, Percent Emissions Reduction Target. If lead agencies enquire about using this approach staff will reference the approach recommended by the San Joaquin Valley Air Pollution Control District and describe the challenges to using this approach. For the third option of Tier 4, SCAQMD staff re-calculated the recommended Tier 4 efficiency targets for project level analyses to 4.8 MT CO_2eq per year in 2020 and 3.0 MT CO_2 per year in 2035. The recommended plan level analysis efficiency target remains 6.6 MT CO2eq per year for 2020, but was lowered to 4.1 MT CO_2eq per year for 2035. SCAQMD staff also stated that they are no longer proposing to include a 25,000 MT CO_2eq per year maximum emissions requirement for compliance with Tier 4. Staff indicated that they hoped to bring the proposed GHG significance thresholds to the board for their December 2010 meeting; however, this did not occur.

For the proposed project, the 3,000 MT CO_2eq per year non-industrial screening threshold is used as the significance threshold in addition to the qualitative thresholds of significance set forth below from section VII of Appendix G to the CEQA Guidelines.

Appendix G

Appendix G of CEQA (Environmental Checklist) defines thresholds to determine the effect that a project would have on air quality and GHG emissions. According to these thresholds, the proposed project would have an impact on air quality or GHG emissions if it would:

AQ-1 Conflict with or obstruct implementation of the applicable air quality plan.

AQ-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

AQ-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

AQ-4 Expose sensitive receptors to substantial pollutant concentrations.

AQ-5 Create objectionable odors affecting a substantial number of people.

GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

GHG-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

3.2.4.3 Impacts and Mitigation

Impact AQ-1: Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?

The proposed project is located within the SCAB, which is governed by the SCAQMD. Consistency with the *2007 Air Quality Management Plan for the South Coast Air Basin* (2007 AQMP) means that a project is consistent with the goals, objectives, and assumptions in the respective plan to achieve the federal and state air quality standards.

According to the SCAQMD *CEQA Air Quality Handbook*, in order to determine consistency with the 2007 AQMP, two main criteria must be addressed.

Criterion 1:

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

a) *Would the project result in an increase in the frequency or severity of existing air quality violations?*

Since the consistency criteria identified under the first criterion pertain to pollutant emissions relative to localized pollutant concentrations, rather than to total regional emissions, an analysis of the project's pollutant emissions relative to localized pollutant concentrations is used as the basis for evaluation project consistency. As discussed under Impact Statement AQ-4, localized

concentrations of CO, NOX, PM10, and PM2.5 have been analyzed for the project, and would be below SCAQMD thresholds. Therefore, the project would not increase the frequency or severity of existing air quality violations.

SO_X emissions would be minimal during construction and long-term operations, and therefore would not have the potential to cause or affect a violation of the SO_X AAQS. Because ROGs are not a criteria pollutant, there is no ambient standard or localized threshold for ROGs. Due to the role ROG plays in ozone formation, it is classified as a precursor pollutant and only a regional emissions threshold has been established.

b) Would the project cause or contribute to new air quality violations?

The proposed project would result in emissions that would be below the SCAQMD thresholds, except for temporary short-term construction emissions resulting from the transport of the battleship. Therefore, the project would have the potential to cause or affect a violation of the AAQS.

c) Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?

The proposed project would result in less than significant impacts with regard to localized concentrations during construction and operations (refer to Impact Statement AQ-4), with the exception of NO_x exceedance during the transport of the battleship. As such, the project would not delay the timely attainment of air quality standards or 2007 AQMP emissions reductions.

Criterion 2:

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the SCAB focuses on attainment of AAQS at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether or not the proposed project exceeds the assumptions utilized in preparing the forecasts presented in the AQMP. Determining whether or not a project exceeds the assumptions reflected in the AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

a) Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP?

A project is consistent with the AQMP in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the AQMP. In the case of the 2007 AQMP, three sources of data

form the basis for the projections of air pollutant emissions: the *City of Los Angeles General Plan* (General Plan), SCAG's *Growth Management* Chapter of the *Regional Comprehensive Plan and Guide* (RCPG), and SCAG's *2008 Regional Transportation Plan* (RTP). The RTP also provides socioeconomic forecast projections of regional population growth. As shown in Impact Statement AQ-3 (Table 3.2-11, *Project Cumulative Air Quality Impacts*), project implementation would remain within the growth projections for the area. Thus, the proposed project is consistent with plans for population growth at the project site. The project is consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the RCPG. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City; these are used by SCAG in all phases of implementation and review. Additionally, as the SCAQMD has incorporated these same projections into the 2007 AQMP, it can be concluded that the proposed project would be consistent with the projections.

b) Would the project implement all feasible air quality mitigation measures?

The proposed project would result in less than significant short-term construction air quality impacts without implementation of mitigation measures, with the exception of the transport emissions from harbor craft which exceed thresholds for NO_x after mitigation. However, air quality emissions would be further reduced with compliance with required emission reduction measures identified by the SCAQMD as identified below under Impact Statement AQ-2. Additionally, mitigation has been included under Impact Statement AQ-2 to reduce NO_X emissions from the harbor craft associated with the project within the Port. As such, the proposed project meets this AQMP consistency criterion.

c) Would the project be consistent with the land use planning strategies set forth in the AQMP?

The proposed project is located within the Port in an urbanized portion of the City. The project site is within proximity to transit and a mix of uses. The proposed project would not conflict with City or SCAG policies.

In conclusion, the determination of AQMP consistency is primarily concerned with the long-term influence of the project on air quality in the SCAB. The proposed project would not result in a long-term impact on the region's ability to meet state and federal air quality standards. Also, the proposed project would be consistent with the goals and policies of the AQMP for control of fugitive dust. As discussed above, the project is an infill project, and its long-term influence would also be consistent with the goals and policies of the AQMP.

Impact Determination

Significant and Unavoidable Impacts. Impacts would be significant and unavoidable for short-term construction emissions involving the transport of the battleship. Impacts for short-term construction (not including transport) and long-term operation would be less than significant with implementation of Mitigation Measures AQ-1 and AQ-2.

Mitigation Measures

Refer to Mitigation Measures AQ-1 and AQ-2.

Impact AQ-2: Would the proposed project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Project-related air emissions would have a significant effect if they resulted in concentrations of air contaminants that could result in either a violation of an ambient air quality standard or contribute to an existing air quality violation. The USS *Iowa* will be towed from San Francisco Bay in Northern California to POLA and operated as a tourist attraction, and would result in construction and operational emissions.

Short-Term Emissions

Temporary sources of air contaminants generated by the proposed project would include emissions from the following construction phases:

- **Phase 1:** Delivery and setup of the prefabricated ticketing/office building, prefabricated restrooms, and prefabricated entry platforms, and the transport of construction workers to and from the project site;
- **Phase 2:** Construction of a 33,800 square foot Visitor Center in Phase 2 (removal of prefabricated structures and existing pavement, fine grading, construction, and architectural coating), and the transport of construction workers to and from the project site; and
- **USS *Iowa* Transport:** Towing the battleship into the Port from San Francisco Bay.

Pollutant emissions would vary from day to day depending on the level of activity, the specific construction operations, and the prevailing weather.

USS *Iowa* Transport

The USS *Iowa* is currently located in San Francisco Bay, and would be transported down the Pacific coast to Berth 87 in the Port via tugboat. The transport of the battleship would result in temporary emissions from the tugboat's diesel engine. However, these emissions would primarily occur outside of any

air basin, and subsequently any AQMD/APCD's jurisdiction. These emissions would be temporary in nature and would cease upon the battleship's arrival to the Port. Additionally, once the USS *Iowa* arrives to the Port, the tugboats used to place the ship at Berth 87 would be required to comply with the OGV Control Measures (i.e., vessel speed reduction, shore-power/alternative maritime power, fuel improvements for main engines, auxiliary engines, and auxiliary boilers, cleaner OGV engines, and technology improvements for OGV engines); refer to Mitigation Measure AQ-1. With implementation of Mitigation Measure AQ-1, tugboat emissions would be reduced, however, NO_x emissions would remain above thresholds. Refer to Table 3.2-8, *Transport Emissions,* and discussion below.

Phase 1

Phase 1 construction activities at the project site would occur over approximately 6 to 9 months. Phase 1 also includes the delivery and assembly of the prefabricated ticketing/office building, prefabricated restrooms, and prefabricated entry platforms. Trucks that deliver the prefabricated structures, trucks used for construction, and any other heavy-duty trucks utilized during project construction would be required to follow the CAAP's CTP which prohibits all pre-1993 model-year trucks within the Port and requires all 1994-2003 model year engines to achieve an 85 percent DPM reduction and a 25 percent NOX reduction through the use of a CARB approved level 3 VDECS; refer to Mitigation Measure AQ-2. Assembly of these structures would be performed primarily with hand tools and would require minimal heavy equipment. Mobile source emissions would result from the transport of construction workers to and from the project site. However, these trips and associated emissions would be minimal due to the limited extent of construction activities during Phase 1.

Phase 2

Phase 2 construction activities would include the construction and architectural coating of the 33,800 square foot Visitor Center. As the timing of Phase 2 implementation is currently unknown, this analysis has assumed the worst case scenario of 2012, as this would conservatively report the greatest emissions. Phase 2 construction activities would begin with disassembly of the temporary prefabricated ticketing/office building and restrooms (total of approximately 960 square feet) and transport of the structures off-site. Demolition activities would include removal of existing pavement to accommodate the building pad. Fine grading would include balancing the soils on-site (no import/export of soil) and soils compaction. Building construction would involve the 33,800 square foot Visitor Center, which would be followed by architectural coating of the structure. Emissions for each construction phase have been quantified based upon the phase durations and equipment types. The analysis of daily construction emissions has been prepared utilizing the CalEEMod computer model. Table 3.2-7, *Short-Term*

(Construction) Emissions – Phase 2, presents the anticipated peak daily short-term construction emissions.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust (PM_{10} and $PM_{2.5}$) emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways (including demolition as well as construction activities). Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from demolition, grading, and construction is expected to be short-term and would cease upon project completion. Additionally, most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Table 3.2-7. Short-Term (Construction) Emissions – Phase 2

Emissions Source	*Emissions (pounds per day)*[1]					
	ROG	*NO_X*	*CO*	*SO_X*	*PM_{10}*	*$PM_{2.5}$*
Demolition, Grading, Construction						
Construction Emissions	39.68	20.01	13.15	0.02	5.16	1.64
Mitigated Emissions[2,3]	39.68	20.01	13.15	0.02	3.63	1.40
SCAQMD Threshold	75	100	550	150	150	55
Is Threshold Exceeded After Mitigation?	No	No	No	No	No	No

Notes:

1. Emissions calculated using the CalEEMod model. Emissions are winter emissions (highest compared to annual average and summer emissions).
2. The reduction/credits for construction emission mitigations are based on reduction measures included in the CalEEMod model, as recommended by the SCAQMD.
3. The reduction/credits for construction emission mitigations are based on mitigation included in the CalEEMod model and as typically required by the SCAQMD (Rule 403) and the Port. The mitigation includes the following: replace ground cover on disturbed areas quickly, water exposed surfaces twice daily, proper loading/unloading of mobile and other construction equipment, and use of Tier 3 engines in construction equipment.

Refer to Appendix D, *Air Quality/Greenhouse Gas Emissions Data*, for assumptions used in this analysis.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} generated as a part of fugitive dust emissions. PM_{10} poses a serious health hazard alone or in combination with other pollutants. Fine Particulate Matter ($PM_{2.5}$) is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction. $PM_{2.5}$ is mostly derived from combustion

sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and SO_X combining with ammonia. $PM_{2.5}$ components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

Although unmitigated PM_{10} and $PM_{2.5}$ emissions are below the SCAQMD thresholds, the project would be required to implement the BMPs (e.g., use of diesel oxidation catalysts, maintenance of equipment, restricted idling, and use of electric power, among other BMPs) within the LAHD Construction Guidelines as well as SCAQMD Rules 402 and 403 (which require watering of inactive and perimeter areas, track out requirements, etc.), to further reduce PM_{10} and $PM_{2.5}$ emissions during grading, as the SCAB is in nonattainment for particulates (refer to Mitigation Measure AQ-2). According to the modeling results in Table 3.2-7, total mitigated PM_{10} and $PM_{2.5}$ emissions would be 3.19 pounds per day (lbs/day) and 1.47 lbs/day, respectively. Construction emissions would likely be further reduced with implementation of all LAHD Construction Guideline BMPs, as some of these measures are not able to be accounted for in the CalEEMod model, and are therefore, not accounted for in the mitigated emissions within Table 3.2-7. As a result, particulate matter emissions would not exceed SCAQMD thresholds and impacts would be less than significant.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by the SCAQMD, the ROG emissions associated with paving have been quantified with the CalEEMod model. In addition, based upon the size of the buildings, architectural coatings were also quantified within the CalEEMod model.

The highest concentration of ROG emissions would be generated during the application of architectural coatings on the buildings. As required by law, all architectural coatings for the proposed project structures would comply with SCAQMD Regulation XI, Rule 1113 – *Architectural Coating*.[17] Rule 1113 provides specifications on painting practices as well as regulates the ROG content of paint. As shown in Table 3.2-8, project construction would not result in an exceedance of ROG emissions during construction. Therefore, impacts would be less than significant.

[17] South Coast Air Quality Management District, *Regulation XI Source Specific Standards*, http://www.aqmd.gov/rules/reg/reg11_tofc.html, accessed on June 21, 2011.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to and from the site. Emitted pollutants would include ROG, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. Standard LAHD Construction Guidelines and SCAQMD regulations, such as maintaining all construction equipment in proper tune, shutting down equipment when not in use for extended periods of time, and implementing SCAQMD Rule 403 would be adhered to with implementation of Mitigation Measure AQ-2. Additionally, with implementation of Mitigation Measure AQ-2, trucks used for construction would be required to comply with the EPA 2004 on-road emission standards. Construction equipment will also be required to be Tier 3 or cleaner. As noted within Table 3.2-7, construction equipment exhaust would not exceed SCAQMD thresholds. Therefore, impacts are less than significant in this regard.

Total Daily Short-Term Emissions

As indicated in Table 3.2-7, impacts would be less than significant for all criteria pollutants emitted during project construction. However, the project would be required to comply with SCAQMD Rule 403 and LAHD Construction Guidelines (which include fugitive dust control measures, and measures such as use of diesel oxidation catalysts, maintenance of equipment, restricted idling, and use of electric power, among other BMPs) which would further reduce emissions (refer to Mitigation Measure AQ-2). Thus, construction related air emissions would be less than significant.

USS *Iowa* Transport

The transport of the USS *Iowa* is anticipated to occur over approximately three days and would require the use of one line-haul tugboat until the arrival at the Port, where the USS *Iowa* would be transferred to two assist tugs. The transport of the USS *Iowa* would occur over approximately 398 nautical miles along the coastline, passing through six air districts. Table 3.2-8, *Transport Emissions*, presents the estimated emissions associated with tugging the USS *Iowa* down the coast to Berth 87.

Table 3.2-8. Transport Emissions

Emissions Source[1]	*Pollutant (pounds/day)*[2]			
	ROG	*NO_X*	*CO*	*PM*
Bay Area AQMD (47 miles traveled through air district)				
Unmitigated Ocean Tug Emissions	10.29	809.95	190.40	24.57
Thresholds	*54*	*54*	--	*82*
Exceed Thresholds?	*No*	***Yes***	*No*	*No*
Monterey Bay Unified APCD (98 miles traveled through air district)				
Unmitigated Ocean Tug Emissions	21.45	1,688.84	397.00	51.23
Thresholds	--	--	--	*82*
Exceed Thresholds?	*No*	*No*	*No*	*No*
San Luis Obispo APCD (63 miles traveled through air district)				
Unmitigated Ocean Tug Emissions	1,099.47		255.21	32.93
Thresholds[4]	*137*		--	*7*
Exceed Thresholds?	***Yes***		*No*	***Yes***
Santa Barbara APCD (42 miles traveled through air district)				
Unmitigated Ocean Tug Emissions	9.19	723.79	170.14	21.95
Thresholds	--	--	--	--
Exceed Thresholds?	*No*	*No*	*No*	*No*
Ventura County APCD (82 miles traveled through air district)				
Unmitigated Ocean Tug Emissions	17.95	1,413.11	332.18	42.86
Thresholds	*25*	*25*	--	--
Exceed Thresholds?	*No*	***Yes***	*No*	*No*
South Coast AQMD (66 miles traveled through air district)				
Unmitigated Ocean Tug Emissions	12.26	965.05	226.86	29.27
Unmitigated Assist Tug Emissions (2 Tugs)	2.88	226.52	53.25	6.87
Mitigated Ocean Tug Emissions[3]	12.26	545.25	226.86	11.42
Mitigated Assist Tug Emissions (2 Tugs)[3]	2.88	127.98	53.25	2.68
Total Mitigated Emissions (Ocean Tug and Assist Tugs)	15.14	673.23	280.11	14.10
Thresholds	*75*	*100*	*550*	*150*
Exceed Thresholds?	*No*	***Yes***	*No*	*No*

Notes:

1. Thresholds of significance from each air district for short-term construction (where available) were utilized, as the transport of the USS *Iowa* would be a single occurrence, and therefore, would represent short-term emissions.
2. Emissions based on a calculation spreadsheet provided by ENVIRON International Corporation on January 6, 2012. A speed of 5 knots was utilized for the transport. Ocean tugs typically use larger engines; therefore, the emissions calculations used the EPA load factor for Category 2 propulsion engines.
3. The mitigated emissions are based on implementation of Mitigation Measure AQ-1, which requires implementation of Clean Air Action Plan Control Measure HC1 (performance standards for harbor craft). According to the Clean Air Action Plan, Control Measure HC1 can reduce NO_X emissions by 25 to 62 percent, and can reduce PM by 44 to 78 percent (not ROG and CO). For the purposes of this analysis, the mean reduction of 43.5 percent has been taken for NO_X and the mean reduction of 61 percent has been taken for PM for emissions within the Port (and within the SCAQMD's jurisdiction).
4. ROG and NO_x are added. See *SLOAPCD CEQA AQ Handbook*, Page 2-2, Table 2-1 for the combined ROG and NO_x pollutants.

Refer to Appendix D, *Air Quality/Greenhouse Gas Emissions Data*.

As depicted in Table 3.2-8, transport emissions would exceed thresholds for NO_X in the Bay Area AQMD, San Luis Obispo Air Pollution Control District (APCD), Ventura County APCD, and the SCAQMD. Emissions would also exceed the San Luis Obispo APCD thresholds for PM. The tug operations associated with arrival activities (transporting the USS *Iowa* within the Port and placing the ship at Berth 87) would be subject to Mitigation Measure AQ-1, which requires the project to comply with CAAP Control Measure HC1. Therefore, emissions resulting from arrival activities within the Port (and within the SCAQMD's jurisdiction) would be reduced; however, NO_X emissions would still exceed SCAQMD's daily NO_X threshold. Although emissions during the transport of the USS *Iowa* to Berth 87 would be temporary, substantial emissions would occur that would not be able to be mitigated to less than significant levels. Thus, impacts from transport emissions are considered to be significant and unavoidable.

Long-Term Operational Emissions

Operational emissions generated by both stationary and mobile sources would result from normal daily activities on the project site after occupation (i.e., increased concentrations of O_3, PM_{10}, and CO). Stationary area source emissions would be generated by the consumption of natural gas for space and water heating devices, and the use of consumer products. Stationary energy emissions would result from energy consumption associated with the proposed project. Mobile emissions would be generated by the motor vehicles traveling to and from the project site. Emissions associated with each of these sources were calculated and are discussed below.

Mobile Source Emissions

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X, PM_{10}, and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

The SCAB is a nonattainment area for federal and state air quality standards for PM_{10}, $PM_{2.5}$, and O_3. NO_X and ROG are regulated O_3 precursors. A precursor is defined as a directly emitted air contaminant that, when released into the atmosphere, forms or causes to be formed, or contributes to the formation of, a secondary air contaminant for which an ambient air quality standard has been adopted. Project-generated vehicle emissions have been estimated using the CalEEMod model. CalEEMod predicts ROG, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ emissions from motor vehicle traffic associated with new or modified land uses. It is noted that the current CalEEMod model (which is recommended for use by

the SCAQMD) utilizes the burden mode of EMFAC2007 to provide more accurate regional characteristics (fleet mix, vehicle miles traveled [VMT], temperature, etc.). CalEEMod also uses trip lengths and types provided by the individual air districts (if provided), otherwise the model uses the statewide defaults.

Based upon the project's *Traffic Study*, the proposed project would generate a maximum of approximately 1,408 daily trips (during spring of the opening year, which represents the worst-case scenario). Table 3.2-9, *Long-Term Operational Air Emissions*, presents the anticipated mobile source emissions. As shown in Table 3.2-9, unmitigated emissions generated by vehicle traffic associated with the proposed project would not exceed established SCAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Therefore, impacts from vehicle emissions would be less than significant.

Stationary Source Emissions

Stationary source emissions would be generated due to an increased demand for electrical energy and natural gas with the development of the proposed project. This assumption is based on the supposition that those power plants supplying electricity to the site are utilizing fossil fuels. Electric power generating plants are distributed throughout the SCAB and western United States, and their emissions contribute to the total regional pollutant burden. The primary use of natural gas by the proposed land uses would be for combustion to produce space heating, water heating, and other miscellaneous heating, or air conditioning. It is noted that stationary source emissions have been quantified and analyzed based upon the square footage of the future Visitor Center which would be implemented during Phase 2 (as opposed to the Phase 1 temporary/prefabricated structures), as this represents the worst case scenario. Power to the docked USS *Iowa* would be supplied by a shore power/alternative maritime power, and the ship's engine would not run at Berth 87. As indicated in Table 3.2-9, unmitigated stationary source emissions from the proposed project would not exceed SCAQMD thresholds. The project would also be required to adhere to the energy efficiency requirements of the 2010 California Green Building Code (CalGreen) which will further reduce stationary source emissions. Thus, impacts from stationary source emissions would be less than significant.

Table 3.2-9. Long-Term Operational Air Emissions

Emissions Source	*Pollutant (pounds/day)*[1]					
	ROG	*NO_X*	*CO*	*SO_X*	*PM_{10}*	*$PM_{2.5}$*
Unmitigated						
Area Source Emissions[2]	0.88	0.00	0.00	0.00	0.00	0.00
Energy Emissions	0.02	0.17	0.14	0.00	0.01	0.01
Mobile Emissions	6.37	14.32	57.92	0.07	8.66	0.58
Total Emissions	*7.27*	*14.49*	*58.06*	*0.07*	*8.67*	*0.59*
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Is Threshold Exceeded? (Significant Impact?)	*No*	*No*	*No*	*No*	*No*	*No*

Notes:
1. Based on CalEEMod modeling results, worst-case seasonal (winter) emissions for area and mobile emissions have been modeled. The Regional Shopping Center land use in CalEEMod was utilized for the purposes of this analysis as this use conservatively uses longer trip lengths.
2. Area Source Emissions include hearths, consumer products, architectural coatings (for maintenance), and landscaping equipment.

Refer to Appendix D, *Air Quality/Greenhouse Gas Emissions Data*, for assumptions used in this analysis.

Maintenance Emissions

Nominal emissions would occur as a result of on-going maintenance activities at the project site. Most notably, the USS *Iowa* would be towed out and turned once per year to ensure even weathering. The turning of the ship would require the use of tugboats in the Port. Tugboats would result in temporary emissions, and would be required to comply with CAAP Control Measure HC1 (performance standards for harbor craft) as required by Mitigation Measure AQ-1. Table 3.2-10, *Ship Turning Emissions*, presents the unmitigated and mitigated emissions from turning the ship for even weathering once per year. As depicted in Table 3.2-10, the turning of the ship would result in less than significant impacts with implementation of Mitigation Measure AQ-1.

Table 3.2-10. Ship Turning Emissions

Emissions Source[1]	*Pollutant (pounds/day)*[2]			
	ROG	*NO_X*	*CO*	*PM*
Unmitigated	1.15	90.61	21.30	2.75
Mitigated[3]	1.15	51.19	21.30	1.07
SCAQMD Threshold	*55*	*55*	*550*	*150*
Is Threshold Exceeded? (Significant Impact?)	*No*	*No*	*No*	*No*

Notes:
1. It is noted that emissions from the annual turning of the ship are not added to the long-term operational emissions because the Visitor Center would be closed once per year on the day of the turning of the ship.
2. Emissions based on a calculation spreadsheet provided by ENVIRON International Corporation on January 6, 2012.
3. The mitigated emissions are based on implementation of Mitigation Measure AQ-1, which requires the project to comply with Clean Air Action Plan Control Measure HC1 (performance standards for harbor craft). According to the Clean Air Action Plan, Control Measure HC1 can reduce NO_X emissions by 25 to 62 percent, and can reduce PM by 44 to 78 percent (not ROG and CO). For the purposes of this analysis, the mean reduction of 43.5 percent has been taken for NO_X and the mean reduction of 61 percent has been taken for PM for emissions within the Port (and within the SCAQMD's jurisdiction).

Refer to Appendix D, *Air Quality/Greenhouse Gas Emissions Data*.

Other maintenance activities that would occur and may result in negligible air emissions include on-going repairs, minor painting, and routine inspections, among others. Air emissions as a result of maintenance activities would be less than significant.

Impact Determination

Less Than Significant With Mitigation. Short-term construction impacts would be less than significant with implementation of Mitigation Measure and AQ-2. However, short-term impacts from the transport of the USS *Iowa* from San Francisco Bay to Berth 87 would be significant and unavoidable, as emissions would exceed thresholds of four of the six air districts the ship would pass through during transport, even with implementation of Mitigation Measure AQ-1.

Mitigation Measures

MM AQ-1. Tugboats utilized for transport of the USS *Iowa* within the Port of Los Angeles (during the transport of the ship from San Francisco Bay to Berth 87 and each year the ship is turned for weathering) shall comply with the Port's Clean Air Action Plan Control Measure HC1. Additionally, in accordance with the Los Angeles Harbor Department's Sustainable Construction Guidelines (revised 2009), tugboats with C1 or C2 marine engines utilized for transport of the USS *Iowa* within the Port of Los Angeles (during the transport of the ship from San Francisco Bay to Berth 87 and each year the ship is turned for weathering) shall utilize an EPA Tier-3 engine, or cleaner.

MM AQ-2. The project shall implement the following measures, where applicable and/or feasible, as required by the Los Angeles Harbor Department's Sustainable Construction Guidelines (revised 2009) during project construction activities. These requirements shall be stipulated in the construction contracts and bid documents.

Best Management Practices

- Use of diesel oxidation catalysts and catalyzed diesel particulate traps.
- Maintain equipment according to manufacturers' specifications.
- Restrict idling of construction equipment and on-road heavy-duty trucks to a maximum of 5 minutes when not in use.
- Install high-pressure fuel injectors on construction equipment vehicles.
- Maintain a minimum buffer zone of 300 meters between truck traffic and sensitive receptors.
- Improve traffic flow by signal synchronization.
- Enforce truck parking restrictions.

- Provide on-site services to minimize truck traffic in or near residential areas, including, but not limited to, the following services: meal or cafeteria services, automated teller machines, etc.
- Re-route construction trucks away from congested streets or sensitive receptor areas.
- Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.
- Use electric power in favor of diesel power where available.
- All construction activities located within 1,000 feet of sensitive receptors (defined as schools, playgrounds, daycares, and hospitals) shall notify each of these sites in writing at least 30 days before construction activities begin.

Fugitive Dust Control

South Coast Air Quality Management District (SCAQMD) Rule 403 requires a Fugitive Dust Control Plan to be prepared and approved for construction sites. Construction contractors are required to obtain a 403 Permit from the SCAQMD prior to construction. The following measures, at minimum, to reduce dust shall be included in the contractor's Fugitive Dust Control Plan:

- SCAQMD's Best Available Control Technology (BACT) measures shall be followed on all projects.
- Active grading sites shall be watered three times per day.
- Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas.
- Contractors shall provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code. ("Spilling Loads on Highways").
- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
- The grading contractor shall suspend all soil disturbance activities when winds exceed 25 miles per hour or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed.
- Open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) shall be covered with a plastic tarp or chemical dust suppressant.
- Stabilize the materials while loading, unloading and transporting to reduce fugitive dust emissions.
- Belly-dump truck seals should be checked regularly to remove trapped rocks to prevent possible spillage.

- Comply with track-out regulations and provide water while loading and unloading to reduce visible dust plumes.
- Waste materials shall be hauled off-site immediately.
- Pave road and road shoulders where available.
- Traffic speeds on all unpaved roads shall be reduced to 15 miles per hour or less.
- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.
- Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable.
- Require the use of clean-fueled sweepers pursuant to SCAQMD Rule 1186 and Rule 1186.1 certified street sweepers. Sweep streets at the end of each day if visible soil is carried onto paved roads on-site or roads adjacent to the site to reduce fugitive dust emissions.
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM_{10} generation.

On-Road Trucks

- The following EPA Standards shall be applicable to import haulers only:
    - From January 1, 2012 on: All on-road heavy-duty diesel trucks with a GVWR of 19,500 pounds or greater used to move dirt to and from the construction site via public roadways at the Port of Los Angeles shall comply with EPA 2004 on-road emission standards for PM_{10} and NO_X (0.10 g/bhp-hr and 2.0 g/bhp-hr, respectively).
- The following EPA Standards shall be applicable to earth movers only:
    - From January 1, 2012 on: All heavy-duty diesel trucks with a GVWR of 19,500 pounds or greater used to move dirt within the construction site at the Port of Los Angeles shall comply with EPA 2004 on-road emission standards for PM_{10} and NO_X (0.10 g/bhp-hr and 2.0 g/bhp-hr, respectively).

  A copy of each unit's certified EPA rating and each unit's CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

Off-Road Equipment

- The following Best Management Practices (BMPs) shall be applicable to Construction Equipment (excluding Vessels, Harbor Craft, and On-Road Trucks):

- Construction equipment shall incorporate, where feasible, emissions-savings technology such as hybrid drives and specific fuel economy standards.
- Idling shall be restricted to a maximum of 5 minutes when not in use.

- Equipment Engine Specifications shall adhere to the following:
  - From January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp, except marine vessels and harbor craft, shall meet Tier-3 off-road emission standards at a minimum. In addition, all construction equipment greater than 50 hp shall be retrofitted with a CARB-verified Level 3 DECS.
  - From January 1, 2015 on: All off-road diesel-powered construction equipment greater than 50 hp, except marine vessels and harbor craft, shall meet Tier-4 off-road emission standards at a minimum.

The above "Equipment Engine Specifications" measures shall be met, unless one of the following circumstances exists, and the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable as specified in the LAHD Sustainable Construction Guidelines, versus 3(a), 3(b) or 3(c), within 200 miles of the Port of Los Angeles, including through a leasing agreement. If this circumstance exists, the equipment must comply with one of the options contained in the *Step Down Schedule* as shown in Table A below. At no time shall equipment meet less than a Tier 1 engine standard with a CARB-verified Level 2 DECS.
- The availability of construction equipment shall be reassessed in conjunction with the years listed in the above Tier Specifications (Prior to December 31, 2011, January 1, 2012 and January 15, 2015) on an annual basis. For example, if a piece of equipment is not available prior to December 31, 2011, the contractor shall reassess this availability on January 1, 2012.

Impact AQ-3: Would the proposed project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Cumulative Short-Term Emissions

With respect to the proposed project's construction-period air quality emissions and cumulative SCAB-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the 2007 AQMP pursuant to FCAA mandates. As such, the proposed project would comply with SCAQMD Rule 403 requirements, as well as adhere to all BMPs within the LAHD Construction Guidelines and programs within the CAAP (refer to Mitigation Measures AQ-1 and AQ-2). Rules 403 requires that fugitive dust be controlled with the best available control measures in order to reduce dust so that it does not remain visible in the atmosphere beyond the property line of the proposed project. In addition, the proposed project would comply with adopted 2007 AQMP emissions control measures. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects throughout the SCAB, which would include related projects.

Compliance with SCAQMD rules and regulations, as well as implementation of LAHD Construction Guidelines and programs within the CAAP (as required by Mitigation Measures AQ-1 and AQ-2), would reduce the project's construction-related impacts to a less than significant level. Thus, it can be reasonably inferred that the project-related construction emissions, in combination with those from other projects in the area, would not substantially deteriorate the local air quality. Thus, a less than significant impact would occur in this regard.

Cumulative Long-Term Emissions

The SCAQMD has set forth both a methodological framework as well as significance thresholds for the assessment of a project's cumulative operational air quality impacts. The SCAQMD's approach for assessing cumulative impacts is based on the SCAQMD's AQMP forecasts of attainment of AAQS in accordance with the requirements of the federal and state CAAs. This forecast also takes into account SCAG's AQMP forecasted future regional growth. As such, the analysis of cumulative impacts focuses on determining whether the proposed project is consistent with the growth assumptions upon which the SCAQMD's AQMP is based. If the project is consistent with the growth assumptions, then future development would not impede the attainment of AAQS and a significant cumulative air quality impact would not occur.

Based on the SCAQMD's methodology, a project would have a significant cumulative air quality impact if the project's contribution to VMT growth exceeds its contribution to employment growth in the region. This is determined by comparing the following two ratios:

- The ratio of daily project-related VMT to daily countywide VMT; and
- The ratio of project-related employment growth to countywide employment growth.

As shown in Table 3.2-11, *Project Cumulative Air Quality Impacts*, the project's VMT ratio does not exceed local thresholds. Based on these criteria, development of the proposed project would have a less than significant impact in this regard. In addition, as stated above, no local CO violations would occur in the project area as a result of project implementation. As such, the mass regional emissions that would occur as a result of the proposed project would not be cumulatively considerable.

Table 3.2-11. Project Cumulative Air Quality Impacts

Cumulative Air Quality Criteria	*VMT, Employment, and Cumulative Ratios*
Daily Vehicle Miles Traveled for Project[1]	6,036
Daily Vehicle Miles Traveled Countywide[2]	240,260,000
Daily Vehicle Miles Traveled Ratio	*0.00003*
Project Related Employment Increase[3]	80
Countywide Employment Increase[4]	394,022
Employment Ratio	*0.0002*
Significance Test (Daily Vehicle Miles Traveled Ratio Greater Than Employment Ratio?)	**No**
VMT = Vehicle Miles Traveled	
Notes: 1 – Increase of VMT based on the CalEEMod outputs (refer to Appendix D, *Air Quality/Greenhouse Gas Emissions Data*). 2 – Data obtained from EMFAC 2007. 3 – Project employment estimation obtained from the *Traffic Study for the USS Iowa Project Environmental Impact Report*, prepared by Fehr and Peers, dated December 2011. 4 – Countywide employment increase from 2010 to 2030; obtained from *Southern California Association of Governments, 2008 Regional Transportation Plan, Growth Forecasting, May 8, 2008*, http://www.scag.ca.gov/forecast/downloads/excel/RTP07_CityLevel.xls, accessed November 15, 2011	

Impact Determination

Less Than Significant Impact. Cumulative impacts would be less than significant with implementation of Mitigation Measures AQ-1 and AQ-2.

Mitigation Measures

Refer to Mitigation Measures AQ-1 and AQ-2.

Impact AQ-4: Would the proposed project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such

as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

Sensitive receptors within the immediate vicinity of the project site are existing residences and institutional uses to the west and northwest. To identify impacts to sensitive receptors, the SCAQMD recommends addressing localized significance thresholds (LSTs) for construction and operations impacts. However, the LST methodology is not designed to evaluate localized impacts from mobile sources. Therefore, localized impacts from project operations are analyzed by the CO hotspots analysis provided below.

Localized Significance Thresholds

LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level proposed projects. The SCAQMD provides the LST lookup tables for one, two, and five acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors. The project is located within SRA 4, South Coastal Los Angeles County.

For project operations, the conservative two-acre thresholds were utilized, as the project site is 4.5 acres. As receptors are approximately 70 meters away, LSTs for 70 meters were linearly interpolated. As seen in Table 3.2-12, *Localized Significance of Emissions*, operational emissions are far below the LSTs, and a less than significant impact would occur in this regard.

Table 3.2-12. Localized Significance of Emissions

Source	*Pollutant (pounds/day)*			
	NO_X	*CO*	*PM_{10}*	*$PM_{2.5}$*
Construction (Phase 2)				
Total Mitigated On-Site Emissions	17.56	19.05	1. 65	1.46
Localized Significance Threshold	62.00	945.40	19.40	7.00
Thresholds Exceeded?	*No*	*No*	*No*	*No*
Operational				
Stationary Source Emissions	0.02	0.01	0.00	0.00
Localized Significance Threshold	82.80	1,339.20	6.60	2.80
Thresholds Exceeded?	*No*	*No*	*No*	*No*

Note:
1. The Localized Significance Threshold was determined using Appendix C of the SCAQMD *Final Localized Significant Threshold Methodology* guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold was based on the anticipated daily acreage disturbance for construction (approximately 1 acre; therefore the 1-acre threshold was used), the total acreage for operational (conservatively uses the 2-acre threshold), the distance to sensitive receptors, and the source receptor area (SRA 4).

Based on the SCAQMD guidance on applying CalEEMod to LSTs, the project would disturb no more than one acre of land per day; therefore, the LST thresholds for one acre were utilized for the construction LST analysis. The closest sensitive receptors to the project site are residential uses approximately 70 meters west of the project site. These sensitive land uses may be potentially affected by air pollutant emissions generated during on-site construction activities. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. As the nearest sensitive uses are approximately 70 meters west of the project site, the LST values were linearly interpolated.

Table 3.2-12 shows the construction-related emissions for NO_X, CO, PM_{10}, and $PM_{2.5}$ compared to the LSTs for SRA 4. As shown in Table 3.2-11, construction and operational emissions would not exceed the LSTs for SRA 4. Therefore, localized significance impacts would be less than significant.

Carbon Monoxide Hotspots

Carbon monoxide emissions are a function of vehicle idling time, meteorological conditions and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthy levels (i.e., adversely affect residents, school children, hospital patients, the elderly, etc.). To identify CO hotspots, the SCAQMD requires a CO microscale hotspot analysis when a project increases the volume-to-capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service (LOS) D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersection locations.

The SCAB is designated as an attainment area for state and federal CO standards. There has been a decline in CO emissions even though VMT on U.S. urban and rural roads have increased. On-road mobile source CO emissions have declined 24 percent between 1989 and 1998, despite a 23 percent rise in motor vehicle miles traveled over the same 10 years. California trends have been consistent with national trends; CO emissions declined 20 percent in California from 1985 through 1997, while VMT increased 18 percent in the 1990s. Three major control programs have contributed to the reduced per-vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance programs.

A detailed CO analysis was conducted in the Federal Attainment Plan for Carbon Monoxide (CO Plan) for the SCAQMD's 2003 Air Quality Management Plan. The locations selected for microscale modeling in the CO Plan are worst-case intersections in the SCAB, and would likely experience the highest CO concentrations. Of these locations, the Wilshire Boulevard/Veteran Avenue intersection experienced the highest CO concentration (4.6 ppm), which is well below the 35-ppm 1-hr CO Federal standard. The Wilshire Boulevard/Veteran Avenue intersection is one of the most congested intersections in Southern California with an average daily traffic (ADT) volume of approximately 100,000 vehicles per day. As the CO hotspots were not experienced at the Wilshire Boulevard/Veteran Avenue intersection, it can be reasonably inferred that CO hotspots would not be experienced at any locations in the project area due to the volume of traffic that would occur as a result of project implementation. Therefore, impacts would be less than significant in this regard.

Impact Determination

Less Than Significant Impact. Operational emissions are far below the LSTs, and CO hotspots would not be experienced at any locations in the project area due to the volume of traffic that would occur as a result of project implementation, therefore, a less than significant impact would occur in this regard. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Impact AQ-5: Would the proposed project create objectionable odors affecting a substantial number of people?

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The project involves the mooring of the USS *Iowa* at the project site with an associated Visitor Center which would include an

education center, museum, ticketing, restrooms, a gift shop, and offices. These types of uses do not typically contain operations capable of producing substantial odors. Therefore, the proposed project does not include any uses identified by the SCAQMD as being associated with odors.

Construction activity associated with the project may generate detectable odors from heavy-duty equipment exhaust. Construction-related odors would be short-term in nature and cease upon project completion. Any impacts to existing adjacent land uses would be short-term and are considered less than significant.

Impact Determination

Less Than Significant Impact. the proposed project does not include any uses identified by the SCAQMD as being associated with odors, therefore, impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Impact GHG-1: Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Direct GHG Emissions

Direct project-related GHG emissions for "business as usual" conditions include emissions from construction activities, area sources, and mobile sources. Table 3.2-13, *Business As Usual Greenhouse Gas Emissions*, presents the estimated CO_2, N_2O, and CH_4 emissions associated with the proposed project. The CalEEMod computer model outputs contained within the Appendix D, were used to calculate construction, mobile source, and area source GHG emissions.

Construction-Related GHG Emissions

Similar to the construction air quality analysis under Impact Statement AQ-2, GHG emissions from construction would result from the transport of the USS *Iowa* to the Port of Los Angeles from San Francisco Bay, construction Phase 1, and construction Phase 2. GHG emissions from tugboats transporting the USS *Iowa* would occur along the coast and within the jurisdiction of six air districts. The transport of the USS *Iowa* would result in approximately 761.59 $MTCO_2eq$. Once the USS *Iowa* arrives to the Port, the tugboats used to place the ship at Berth 87 would be required to comply with Mitigation Measure AQ-1, which would reduce tugboat-related emissions.

Phase 1 construction activities would require the delivery and assembly of the prefabricated structures. Trucks that deliver the prefabricated structures, trucks

used for construction, and any other heavy-duty trucks utilized during project construction would be required to comply with the EPA 2004 on-road emission standards which would reduce GHG emissions (refer to Mitigation Measure AQ-2). Assembly of these structures would be performed primarily with hand tools and would require minimal heavy equipment. Mobile source emissions would result from the transport of construction workers to and from the project site. However, these trips and associated emissions would be minimal due to the limited extent of construction activities during Phase 1.

Phase 2 construction activities would include the construction and architectural coating of the 33,800 square foot Visitor Center and would result in the greatest amount of GHG emissions during the overall construction phase. As the timing of Phase 2 implementation is currently unknown, this analysis has assumed the worst case scenario of 2012, as this would conservatively report the greatest emissions. Phase 2 construction activities would include demolition, fine grading, building construction, and architectural coating. As depicted in Table 3.2-13, project construction and transport of the ship would result in 996.52 $MTCO_2eq$. Short-term (transport of the USS *Iowa*) and construction GHG emissions are typically summed and amortized over the lifetime of the project (assumed to be 30 years), then added to the operational emissions.[18]

[18] The project lifetime is based on the standard 30 year assumption of the South Coast Air Quality Management District (http://www.aqmd.gov/hb/2008/December/081231a.htm).

Table 3.2-13. Business As Usual Greenhouse Gas Emissions

Source	*CO_2*	*CH_4*		N_2O		*Total Metric Tons of CO_2eq/yr*
	Metric Tons/yr[1]	*Metric Tons/yr*[1]	*Metric Tons of CO_2e/yr*[2]	*Metric Tons/yr*[1]	*Metric Tons of CO_2eq/yr*[2]	
Direct Emissions						
▪ Short-Term[5]/ Construction (amortized over 30 years)	33.20	0.00	0.02	0.00	0.00	33.22
▪ Area Source	0.00	0.00	0.00	0.00	0.00	0.00
▪ Mobile Source	1,083.71	0.07	1.42	0.00	0.00	1,085.13
▪ Ship Turning[3]	9.98	--	--	--	--	9.98
Total Direct Emissions[4]	*1,091.52*	*0.07*	*1.44*	*0.00*	*0.00*	*1,128.33*
Indirect Emissions						
▪ Energy	291.12	0.01	0.21	0.00	0.95	292.07
▪ Solid Waste	7.20	0.43	8.90	0.00	0.04	16.14
▪ Water Demand	27.92	0.08	1.70	0.00	0.58	30.20
Total Indirect Emissions[4]	*326.24*	*0.52*	*10.81*	*0.00*	*1.57*	*338.41*
Total Project-Related Emissions[4]	*1,466.74 $MTCO_2eq/yr$*					

Notes:
1. Emissions calculated using CalEEMod computer model.
2. CO_2 Equivalent values calculated using the EPA Website, *Greenhouse Gas Equivalencies Calculator*, http://www.epa.gov/cleanenergy/energy-resources/calculator.html, accessed January 2012.
3. Emissions include the use of 2 assist tugs to turn the ship, and are based on a calculation spreadsheet provided by ENVIRON International Corporation on January 6, 2012.
4. Totals may be slightly off due to rounding.
5. Short-Term direct emissions include USS *Iowa* transport emissions from ocean and harbor tugs.

Refer to Appendix D, *Air Quality/Greenhouse Gas Emissions Data*, for detailed model input/output data.

Operational Emissions

Direct operational GHG estimations are based on emissions from area and mobile sources. GHGs associated with area sources and mobile sources would be 0.00 $MTCO_2eq/yr$ and 1,085.13 $MTCO_2eq/yr$, respectively. Total project-related direct operational emissions (including amortized construction emissions) would result in 1,128.33 $MTCO_2eq/yr$.

Indirect Project Related Sources of Greenhouse Gases

Energy Consumption. Energy Consumption emissions were calculated using the CalEEMod model and project-specific land use data. Electricity would be provided to the project site via Los Angeles Department of Water and Power. The project would indirectly result in 292.07 $MTCO_2eq/year$ due to energy consumption; refer to Table 3.2-13.

Solid Waste. Solid waste associated with operations of the proposed project would result in 16.14 $MTCO_2eq$/year; refer to Table 3.2-13.

Water Demand. The City would be the main water supply provider to the proposed project. The project's water supply would be provided by imported sources and local groundwater. Emissions from indirect energy impacts due to water supply would result in 30.20 $MTCO_2eq$/year.

Total Project-Related Sources of Greenhouse Gases. As shown in Table 3.2-13, the total amount of project-related "business as usual" GHG emissions from direct and indirect sources combined would total 1,466.74 $MTCO_2eq$/yr which are below the 3,000 $MTCO_2eq$/yr GHG threshold.

Maintenance Emissions

Nominal GHG emissions would occur as a result of on-going maintenance activities at the project site. The USS *Iowa* will be towed out via tugboat and turned once per year to ensure even weathering. Tugboats would result in temporary emissions (approximately 9.98 $MTCO_2eq$), and would be required to comply with Control Measure HC1 (performance standards for harbor craft) (refer to Mitigation Measure AQ-1). Other maintenance activities that would occur and may result in negligible GHG emissions associated with on-going repairs, minor painting, and routine inspections, among others. GHG emissions as a result of maintenance activities would be less than significant.

Impact Determination

Less Than Significant With Mitigation. Impacts would be less than significant with implementation of Mitigation Measures AQ-1 and AQ-2.

Mitigation Measures

Refer to Mitigation Measures AQ-1 and AQ-2.

Impact GHG-2: Would the proposed project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As previously noted, the CAAP was approved in November 2006 (updated in 2010) by governing boards of the Ports of Los Angeles and Long Beach. Although the CAAP primarily addresses pollution and TACs, programs and control measures within the CAAP also reduce GHG emissions. Project implementation of CAAP Control Measure HC1 (performance standards for harbor craft) and LAHD Construction Guideline BMPs as a result of implementation of Mitigation Measures AQ-1 and AQ-2 would result in project consistency with the CAAP.

In May 2007, the City of Los Angeles adopted Green LA, which is a plan with the purpose of reducing GHG emissions. The goal of Green LA is to reduce CO_2 emissions 35 percent below 1990 levels by 2030. Green LA directed the Port to develop an individual CAP, consistent with the goals of Green LA, to explore opportunities to reduce GHGs from municipal operations. Green LA was developed to reduce emissions from major tenant operations such as operation of heavy duty vehicles/trucks, ocean-going vessels, harbor craft, cargo handling equipment, and railroad locomotives. The project proposes the mooring of the USS *Iowa* at Berth 87 as well as a Visitor Center. Therefore, as the proposed uses/operations are not associated with municipal operations, the measures within the Port's CAP do not necessarily apply to the project. However, the project would incorporate several GHG reduction measures similar to those included within the Port's CAP. The project would be required to comply with the CalGreen requirements for non-residential uses which include water and energy conservation measures. Additionally, with implementation of Mitigation Measure AQ-1, the project would also be required to implement the VSRP and CAAP Control Measure HC1 during the annual turning of the ship. Therefore, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Impact Determination

Less Than Significant With Mitigation. Impacts would be less than significant with implementation of Mitigation Measures AQ-1 and AQ-2.

Mitigation Measures

Mitigation Measures AQ-1 and AQ-2.

3.2.4.4 Mitigation Monitoring

Mitigation Number	*Mitigation Measure*	*Implementation Responsibility*	*Timing*	*Monitoring Responsibility*	*Timing*
AQ-1	Tugboats utilized for transport of the USS *Iowa* within the Port of Los Angeles (during the transport of the ship from San Francsico Bay to Berth 87 and each year the ship is turned for weathering) shall comply with the Port's Clean Air Action Plan as Control Measure HC1. Additionally, in accordance with the Los Angeles Harbor Department's Sustainable Construction Guidelines (revised 2009), tugboats with C1 or C2 marine engines utilized for transport of the USS *Iowa* within the Port of Los Angeles (during the transport of the ship from San Francisco Bay to Berth 87 and each year the ship is turned for weathering) shall utilize an EPA Tier-3 engine, or cleaner.	Applicant	Prior to, and During, Mobilization of the USS *Iowa*	City Planning Director	Prior to, and During, Mobilization of the USS *Iowa*
AQ-2	The project shall implement the following measures, where applicable and/or feasible, as required by the Los Angeles Harbor Department's Sustainable Construction Guidelines (revised 2009) during project construction activities. These requirements shall be stipulated in the construction contracts and bid documents. <u>Best Management Practices</u> • Use of diesel oxidation catalysts and catalyzed diesel particulate traps. • Maintain equipment according to manufacturers' specifications. • Restrict idling of construction equipment and on-road heavy-duty trucks to a maximum of 5 minutes when not in use. • Install high-pressure fuel injectors on construction equipment vehicles. • Maintain a minimum buffer zone of 300 meters between truck traffic and sensitive receptors.	Applicant and Contractor	Prior to Finalization of Building Plans, and Specifications; During Construction	City Engineer and the Planning Director	Prior to Finalization of Building Plans, and Specifications; Field Inspections During Construction

Mitigation Number	*Mitigation Measure*	*Implementation Responsibility*	*Timing*	*Monitoring Responsibility*	*Timing*
	• Improve traffic flow by signal synchronization. • Enforce truck parking restrictions. • Provide on-site services to minimize truck traffic in or near residential areas, including, but not limited to, the following services: meal or cafeteria services, automated teller machines, etc. • Re-route construction trucks away from congested streets or sensitive receptor areas. • Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site. • Use electric power in favor of diesel power where available. • All construction activities located within 1,000 feet of sensitive receptors (defined as schools, playgrounds, daycares, and hospitals) shall notify each of these sites in writing at least 30 days before construction activities begin. <u>Fugitive Dust Control</u> South Coast Air Quality Management District (SCAQMD) Rule 403 requires a Fugitive Dust Control Plan to be prepared and approved for construction sites. Construction contractors are required to obtain a 403 Permit from the SCAQMD prior to construction. The following measures, at minimum, to reduce dust shall be included in the contractor's Fugitive Dust Control Plan: • SCAQMD's Best Available Control Technology (BACT) measures shall be followed on all projects. • Active grading sites shall be watered three times per day. • Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or				

Mitigation Number	*Mitigation Measure*	*Implementation Responsibility*	*Timing*	*Monitoring Responsibility*	*Timing*
	replace groundcover in disturbed areas. • Contractors shall provide temporary wind fencing around sites being graded or cleared. • Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code. ("Spilling Loads on Highways"). • Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site. • The grading contractor shall suspend all soil disturbance activities when winds exceed 25 miles per hour or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed. • Open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) shall be covered with a plastic tarp or chemical dust suppressant. • Stabilize the materials while loading, unloading and transporting to reduce fugitive dust emissions. • Belly-dump truck seals should be checked regularly to remove trapped rocks to prevent possible spillage. • Comply with track-out regulations and provide water while loading and unloading to reduce visible dust plumes. • Waste materials shall be hauled off-site immediately. • Pave road and road shoulders where available. • Traffic speeds on all unpaved roads shall be reduced to 15 miles per hour or less. • Provide temporary traffic controls				

Mitigation Number	*Mitigation Measure*	*Implementation Responsibility*	*Timing*	*Monitoring Responsibility*	*Timing*

	such as a flag person, during all phases of construction to maintain smooth traffic flow.
	• Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable.
	• Require the use of clean-fueled sweepers pursuant to SCAQMD Rule 1186 and Rule 1186.1 certified street sweepers. Sweep streets at the end of each day if visible soil is carried onto paved roads on-site or roads adjacent to the site to reduce fugitive dust emissions.
	• Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM_{10} generation.
	
	<u>On-Road Trucks</u>
	
	• The following EPA Standards shall be applicable to import haulers only:
	  • From January 1, 2012 on: All on-road heavy-duty diesel trucks with a GVWR of 19,500 pounds or greater used to move dirt to and from the construction site via public roadways at the Port of Los Angeles shall comply with EPA 2004 on-road emission standards for PM_{10} and NO_X (0.10 g/bhp-hr and 2.0 g/bhp-hr, respectively).
	• The following EPA Standards shall be applicable to earth movers only:
	  • From January 1, 2012 on: All heavy-duty diesel trucks with a GVWR of 19,500 pounds or greater used to move dirt within the construction site at the Port of Los Angeles shall comply with EPA 2004 on-road emission				

Mitigation Number	*Mitigation Measure*	*Implementation Responsibility*	*Timing*	*Monitoring Responsibility*	*Timing*

	standards for PM_{10} and NO_X (0.10 g/bhp-hr and 2.0 g/bhp-hr, respectively).
	
	A copy of each unit's certified EPA rating and each unit's CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.
	
	<u>Off-Road Equipment</u>
	
	• The following Best Management Practices (BMPs) shall be applicable to Construction Equipment (excluding Vessels, Harbor Craft, and On-Road Trucks):
	  • Construction equipment shall incorporate, where feasible, emissions-savings technology such as hybrid drives and specific fuel economy standards.
	  • Idling shall be restricted to a maximum of 5 minutes when not in use.
	• Equipment Engine Specifications shall adhere to the following:
	  • From January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp, except marine vessels and harbor craft, shall meet Tier-3 off-road emission standards at a minimum. In addition, all construction equipment greater than 50 hp shall be retrofitted with a CARB-verified Level 3 DECS.
	  • From January 1, 2015 on: All off-road diesel-powered construction equipment greater than 50 hp, except marine vessels and harbor craft, shall meet Tier-4 off-road emission standards at a minimum.				

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Timing
	The above "Equipment Engine Specifications" measures shall be met, unless one of the following circumstances exists, and the contractor is able to provide proof that any of these circumstances exists: • A piece of specialized equipment is unavailable as specified in 3(a), 3(b) or 3(c) within 200 miles of the Port of Los Angeles, including through a leasing agreement. If this circumstance exists, the equipment must comply with one of the options contained in the Step Down Schedule as shown in Table A below. At no time shall equipment meet less than a Tier 1 engine standard with a CARB-verified Level 2 DECS. • The availability of construction equipment shall be reassessed in conjunction with the years listed in the above Tier Specifications (Prior to December 31, 2011, January 1, 2012 and January 15, 2015) on an annual basis. For example, if a piece of equipment is not available prior to December 31, 2011, the contractor shall reassess this availability on January 1, 2012.				

3.2.5 Significant Unavoidable Impacts

The proposed project would result in significant unavoidable air quality impacts from the transport of the USS *Iowa* from San Francisco Bay to Berth 87 in the Port. If the Port approves the project, the Port shall be required to cite their findings in accordance with Section 15091 of CEQA and prepare a Statement of Overriding Considerations in accordance with Section 15093 of CEQA.