Section 3.2
Air Quality

SECTION SUMMARY

This section describes the existing air quality environment within the project area and potential impacts on air quality associated with construction and operation of the proposed project. An analysis of potential impacts on air quality associated with the alternatives is detailed in Chapter 4 Analysis of Alternatives.

Section 3.2 Air Quality provides the following:

- A description of the air quality within the region and project site vicinity;
- A description of local, state, and federal regulations and policies regarding air quality;
- A discussion on the methodology and thresholds used to determine whether the proposed project would conflict with or obstruct implementation of an air quality plan, result in an impact to air quality from project-generated emissions during construction or operation, or result in objectionable odors associated with stockpiling of dredged materials affecting a substantial number of people;
- An impact analysis of the proposed project associated with air quality;
- A description of any Conditions of Approval that the City would impose, or mitigation measures proposed to reduce any potential impacts and residual impacts (i.e., impacts remaining after mitigation), as applicable;
- An analysis of potential cumulative impacts associated with air quality;
- A summary of air quality impact determinations associated with the proposed project, cumulative growth, and mitigation measures; and
- A description of significant unavoidable impacts associated with air quality, if any.

Key Points of Section 3.2:

The construction and operation of the project would result in emissions of criteria pollutants and toxic air contaminants (TACs). Construction activities emit criteria pollutants and TACs as a result of equipment exhaust from haul and vendor vehicles and off-road construction equipment. Additionally, the disturbance of soils within the project site during the construction activities would result in the emission of fugitive dust, which is a form of particulate matter and a criteria pollutant. Project operations would result in the emission of criteria pollutants and TACs from area sources associated with the development, as well as from the vehicle trips associated with employees and patrons of the proposed project.

The proposed project would not exceed the regional thresholds established for the operational emissions of criteria air pollutants within the air district at either the project or cumulative level. However, while it was determined that construction emissions from the proposed project would not exceed the South Coast Air Quality Management District's (SCAQMD's) regional thresholds for sulfur oxides (SOx), respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$), the emissions would exceed SCAQMD's

regional thresholds for reactive organic gases (ROG), nitrogen oxides (NOx), and carbon monoxide (CO). In order to reduce these pollutant emissions, the following mitigation measures were recommended for the proposed project:

MM AQ-1: Fleet Modernization for Construction Equipment

Prior to issuance of any Grading Permit, the City Engineer and the Chief Building Official shall confirm that the Grading Plan, Building Plans, and specifications stipulate that the construction contractor shall ensure that all off-road equipment with a horsepower greater than 50 horsepower (HP) be required to have USEPA certified Tier 4 interim engines or engines that are certified to meet or exceed the NOx emission ratings for USEPA Tier 4 engines. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 4 diesel emissions control strategy for a similarly sized engine, as defined by CARB regulations. During construction, the construction contractor shall maintain a list of all operating equipment in use on the project site for verification by the City's Building and Safety Division. The construction equipment list shall state the makes, models, and numbers of construction equipment on-site. Equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations. Construction contractors shall also ensure that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with California Air Resources Board's Rule 2449. These activities shall be verified by the Building and Safety Division during construction.

MM AQ-2: **Use of Low-VOC Coatings and Paints**

Prior to issuance of any Grading Permit, the City Engineer and the Chief Building Official shall confirm that the construction plans and specifications stipulate that all architectural coatings shall meet a volatile organic compound (VOC) content of 50 grams per liter (g/L) or less for interior coating and 100 g/L or less for exterior coatings. Use of low-VOC paints shall be verified by the Building and Safety Division during construction.

Implementation of mitigation measures MM AQ-1 and MM AQ-2 would reduce emissions of ROG to 68 lbs/day, which is below the regulatory thresholds. As such, regional air quality impacts associated with ROG would be reduced to a less-than-significant level with mitigation. However, although the mitigation measures would reduce the project's construction emissions of NOx and CO to 383 and 697 lbs/day, respectfully, the project's emissions would still exceed the regulatory thresholds of 100 lbs/day for NOx and 550 lbs/day for CO. Thus, while implementation of mitigation measures MM AQ-1 and MM AQ-2 would reduce the project's construction emissions, they would not be able to reduce the emissions of NOx and CO to less-than-significant levels. Therefore, the proposed project's regional air quality impacts with respect to construction emissions of NOx and CO would remain significant and unavoidable.

During construction and operation of the proposed project, it was determined that the proposed project would not expose sensitive receptors to significant localized concentrations of NOx, CO, PM_{10}, and $PM_{2.5}$. Additionally, the proposed project is also not anticipated to expose sensitive receptors to objectionable odors or to localized significant pollutant concentrations with respect to mobile CO emissions and toxic air contaminants during operations. Therefore, for these impact areas, the proposed project would result in less than significant impacts, and no mitigation is required.

Furthermore, although TAC emissions would be generated from off-road diesel equipment used during the proposed project's construction activities, the construction period for the proposed project would occur over 30 months, which is much less than the 70-year period used for risk determination associated with exposure to

TACs. Additionally, the screening level risk assessment conducted for project construction result in a cancer risk of 0.90 per million people and a non-cancer risk of 0.001. These are below the regulatory thresholds of 10 per million people and one, respectively. Therefore, this impact would be less than significant. The operation of the commercial retail, office, boutique hotel, and specialty uses associated with the proposed project is not anticipated to result in the emissions of TACs; therefore, the operation of the proposed project would have no impact on localized sensitive receptors.

This page left intentionally blank

3.2.1 Introduction

This section describes the existing air quality in the project area, identifies applicable rules and regulations, and evaluates potential short- and long-term air quality impacts associated with buildout of the proposed project. Where applicable, measures to mitigate or minimize air pollutant emissions associated with the proposed project are included. Modeling Assumptions, calculations and output files are provided in Appendix C1-8.

3.2.2 Environmental Setting

3.2.2.1 Climate and Meteorology

The project site is located in the City of Redondo Beach and is within the South Coast Air Basin (SCAB), which is under the jurisdiction of the SCAQMD. The SCAB is a 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

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

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The topography and climate of Southern California combine to make the SCAB an area of high air pollution potential. The SCAB is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is disrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions that produce ozone (O_3).

Based on past climate records from the Western Regional Climate Center (WRCC) monitoring station located in Redondo Beach (Torrance Monitoring Station [ID No. 048973]), the average annual maximum temperature in the area is 71.9 degrees Fahrenheit (°F) and the average annual minimum temperature is 52.3° F. The average precipitation in the area is approximately 13.55 inches annually, occurring primarily from December through March (WRCC, 2015).

3.2.2.2 Federal and State Ambient Air Quality Standards

3.2.2.2.1 Ambient Air Quality Standards

Regulation of air pollution is achieved through both federal and state ambient air quality standards and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has identified criteria pollutants and has established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for O_3, CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM) (i.e., PM_{10} and $PM_{2.5}$), and lead (Pb). These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, the USEPA has set "primary" and "secondary" maximum ambient limits for each of the criteria pollutants. Primary standards were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent damage to animals, crops, vegetation, and buildings.

3.2.2.2.2 Regional and Local

The NAAQS establish the level for an air pollutant above which detrimental effects to public health or welfare may result. The NAAQS are defined as the maximum acceptable concentrations that, depending on the pollutant, may not be equaled or exceeded more than once per year or in some cases as a percentile of observations. California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (i.e., California Ambient Air Quality Standards [CAAQS]) and has adopted air quality standards for some pollutants for which there is no corresponding national standard, such as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Both the national and State ambient air quality standards for pollutants along with their associated health effects and sources are presented in Table 3.2-1 and Section 3.2.2.2.3 below.

3.2.2.2.3 Criteria Air Pollutants

The California Air Resources Board (CARB) and USEPA currently focus on criteria air pollutants because they are the most prevalent air pollutants known to be injurious to human health and extensive health-effects criteria documents are available about their effects on human health and welfare. A general description of these pollutants is provided below.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include ROGs or volatile organic compounds (VOCs), and NOx. While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB and is identified based on a list of carbon compounds that exempts carbon compounds determined by CARB to be nonreactive. VOC is a term used by the USEPA and is identified based on USEPA's separate list of exempted compounds it identifies as having negligible photochemical reactivity. The time period required for ozone formation allows the reacting compounds to spread over a large area, producing regional

pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed it remains in the atmosphere for one or two days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth ("rainout"), or absorption by water molecules in clouds that later fall to earth with rain ("washout").

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

CO, a colorless and odorless gas, is a relatively non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NOx, which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Sulfur Dioxide

SO_2 is a colorless, extremely irritating gas or liquid that enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as SOx.

Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. This compound also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Table 3.2-1: Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	No National Standard	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when ROG and NO_X react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.07 ppm	0.075 ppm		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Arithmetic Mean	0.030 ppm	0.053 ppm		
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	75 ppb	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	No State Standard	0.50 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Arithmetic Mean	No State Standard	0.03 ppm		
Respirable Particulate Matter (PM10)	24 hours	50 µg/m^3	150 µg/m^3	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	20 µg/m^3	No National Standard		
Fine Particulate Matter (PM2.5)[1]	24 hours	No State Standard	35 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3		
Lead (Pb)	30 Day Average	1.5 µg/m^3	No National Standard	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases).	*Present source:* lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.
	Rolling 3-Month Average	No State Standard	0.15 µg/m^3		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal power plants, petroleum production and refining
Sulfates (SO_4)	24 hour	25 µg/m^3	No National Standard	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, and discourages tourism.	See $PM_{2.5}$.

Source: CARB, 2013a

Note: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.

1. For PM2.5 the secondary standard for annual arithmetic mean is 15 µg/m^3. For the other pollutants with secondary standards, those standards are the same a the primary.

Particulate Matter

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Particulate matter can also damage materials and reduce visibility. One common source of $PM_{2.5}$ is diesel exhaust emissions.

Ultrafine particles are particles that are 0.1 micron or less in diameter. These particles have the potential to be more easily inhaled and can be deposited deeper into the lungs (SCAQMD, 2010). Because of their size they can rapidly penetrate into lung tissue and other organs in the body. Ultrafine particles are associated with death from heart disease caused by blocked arteries (OEHHA, 2015).

PM_{10} consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources,[1] construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ are also emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. $PM_{2.5}$ can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including ROGs, ammonia (NH_3), NOx, and SOx. Ultrafine particles are not currently monitored for or considered a criteria air pollutant, however as they are a subsection of both PM_{10} and $PM_{2.5}$ they are accounted for indirectly the analysis.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks; and motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 is largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved due to enhanced controls in the metals processing industry. In the SCAB, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as total suspended particulates. As lead has been well below regulatory

[1] Mobile construction sources include off-road construction equipment (i.e. movable cranes, dozers, graders etc.), and haul trucks, worker vehicles and vendor vehicles. Stationary construction sources are fixed equipment such as compressors, generator, fans, etc. For operation, mobile source include on-road mobile sources (employee and patron vehicles as well as vendor vehicles), while stationary sources include building heating and cooling units (i.e., HVAC systems), landscaping equipment, etc. The model does not break out construction equipment into mobile and stationary, but as equipment exhaust.

thresholds for decades and the proposed project is not a source of lead-based paint, lead is not discussed further in this analysis.

3.2.2.2.4 Toxic Air Contaminants

Concentrations of TACs, or in federal parlance, hazardous air pollutants (HAPs), are also used as indicators of ambient air quality conditions. 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 (CARB, 2009), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

CARB has made preliminary concentration estimates based on a particulate matter 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 diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

3.2.2.2.5 Odorous Emissions

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). Offensive odors are unpleasant and can lead to public distress generating citizen complaints to local governments. Although unpleasant, offensive odors rarely cause physical harm. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors.

3.2.2.3 Project Area Air Quality

3.2.2.3.1 Existing Air Quality

SCAQMD maintains monitoring stations within district boundaries that monitor air quality and compliance with associated ambient standards. The project site is located in the Southwest Coastal Los Angeles County Air Monitoring Subregion. Currently, the nearest monitoring station to the project site is the Los Angeles-Westchester Parkway monitoring station (7210 West Westchester Parkway), which is located approximately seven miles north of the project site. This station monitors ambient concentrations of ozone, NO_2, SO_2, CO, and

PM_{10}, but does not monitor $PM_{2.5}$. The nearest monitoring station that monitors ambient concentrations of $PM_{2.5}$ is the Long Beach North Monitoring Station located at 3648 North Long Beach Boulevard in the City of Long Beach, which is approximately 11 miles east of the project site[2]. Historical data of ambient ozone, NO_2, SO_2, CO, and PM_{10} concentrations from the Los Angeles-Westchester Parkway monitoring station and ambient $PM_{2.5}$ concentrations from the Long Beach North monitoring station for the most recent four years (2011 – 2014) are shown in Table 3.2-2.

Table 3.2-2: Air Quality Data Summary (2011 – 2014) For Project Area

Pollutant	Monitoring Data by Year				
	Standard[a]	2011	2012	2013	2014
Ozone – Los Angeles – Westchester Parkway Monitoring Station					
Highest 1 Hour Average (ppm)		0.078	0.106	0.105	0.114
Days over State Standard	0.09 ppm	0	1	1	1
Highest 8 Hour Average (ppm)		0.067	0.075	0.081	0.080
Days over National Standard	0.075 ppm	0	0	1	3
Days over State Standard	0.070 ppm	0	1	1	6
Carbon Monoxide – Los Angeles – Westchester Parkway Monitoring Station					
Highest 8 Hour Average (ppm)		1.8	2.5	2.5	1.9
Days over National Standard	9.0 ppm	0	0	0	0
Days over State Standard	9.0 ppm	0	0	0	0
Nitrogen Dioxide – Los Angeles – Westchester Parkway Monitoring Station					
Highest 1 Hour Average (ppm)		0.0976	0.0617	0.0778	0.0873
Days over National Standard	0.100 ppm	0	0	0	0
Days over State Standard	0.18 ppm	0	0	0	0
Annual Average (ppm)		0.0134	0.0104	0.0118	0.0119
Days over National Standard	0.053 ppm	0	0	0	0
Days over State Standard	0.030 ppm	0	0	0	0
Sulfur Dioxide – Los Angeles – Westchester Parkway Monitoring Station					
Highest 1 Hour Average (ppm)		0.0115	0.0049	0.0101	0.0153
Days over State Standard	0.25 ppm	0	0	0	0
Particulate Matter (PM_{10}) – Los Angeles – Westchester Parkway Monitoring Station					
Highest 24 Hour Average ($\mu g/m_3$)[b]		41	31	38	46
Days over National Standard (measured)[c]	150 μg/m3	0	0	0	0
Days over State Standard (measured)[c]	50 μg/m3	0	0	0	0
Annual Average ($\mu g/m_3$)[b]	20 μg/m3	21.7	19.8	20.8	22.0
Particulate Matter ($PM_{2.5}$) – Long Beach North Monitoring Station					
Highest 24 Hour Average ($\mu g/m_3$)[b]		39.7	49.8	47.2	*
Days over National Standard (measured)[c]	35 μg/m3	1	4	2	*
Annual Average ($\mu g/m^3$)[b]	12 μg/m3	11	10.4	11.34	*

[2] While the Long Beach North Monitoring Station is located almost 11 miles from the project site, the data collected for $PM_{2.5}$ from this station is appropriate to use as representative of the site conditions because it is designed to measure the highest concentrations of the pollutant within the region. Additionally, while not in the same source receptor area the monitoring station is in a source receptor area with a similar forecast and, therefore, further represents similar concentrations could be anticipated at the project site.,

Source: SCAQMD, 2014a, 2013b, 2012, 2011b
Notes:
ppm = parts per million; μg/m^3 = micrograms per cubic meter.
* = Data not available at the time the report was written.

[a] Generally, state standards and national standards are not to be exceeded more than once per year. This is not the CEQA significance threshold; CEQA thresholds are described in Section 3.2.4.2.

[b] Concentrations and averages represent federal statistics. State and federal statistics may differ because of different sampling methods.

[c] Measurements are usually collected every six days. Days over the standard represent the measured number of days that the standard has been exceeded.

Both CARB and USEPA 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 the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment. The current attainment status for the SCAB is provided in Table 3.2-3.

Table 3.2-3: South Coast Air Basin Attainment Status

	Attainment Status	
Pollutant	**California Standards**	**Federal Standards**
Ozone	Nonattainment	Extreme Nonattainment
CO	Attainment	Unclassified/ Attainment (Maintenance)
NO_2	Attainment	Unclassified/ Attainment (Maintenance)
SO_2	Attainment	Attainment
PM_{10}	Nonattainment	Attainment (Maintenance)
$PM_{2.5}$	Nonattainment*	Moderate Nonattainment
Lead	Attainment	Nonattainment

Source: CARB, 2013b; USEPA, 2013

* In 2011, both the annual PM2.5 standard (15 μg/m3) and the 24-hour PM2.5 standard (98 the percentile greater than 35 μg/m3) were exceeded at only one air monitoring station, Mira Loma, in Northwestern Riverside County

Despite the current non-attainment status, air quality within the Basin has generally improved since the inception of air pollutant monitoring in 1976. This improvement is mainly due to lower-polluting on-road motor vehicles, more stringent regulation of industrial sources, and the implementation of emission reduction strategies by the SCAQMD. This trend towards cleaner air has occurred in spite of continued population growth.[3] As discussed in the 2012

[3] These trends are shown in greater detail on SCAQMD's website at: http://www.aqmd.gov/home/library/air-quality-data-studies/historic-ozone-air-quality-trends.

Air Quality Management Plan (AQMP) for the SCAB as a whole:

> *Despite this growth, air quality has improved significantly over the years, primarily due to the impacts of the region's air quality control program … PM_{10} levels have declined almost 50% since 1990, and $PM_{2.5}$ levels have also declined 50% since measurements began in 1999… the only air monitoring station that is currently exceeding or projected to exceed the 24-hour $PM_{2.5}$ standard from 2011 forward is the Mira Loma station in Western Riverside County. Similar improvements are observed with ozone, although the rate of ozone decline has slowed in recent years.*[4]

Similar trends are anticipated to occur under future cumulative projections. Emissions trends for NO_X and $PM_{2.5}$ are shown in Figure 3.2-1 (NO_X Emission Trend) and Figure 3.2-2 ($PM_{2.5}$ Emission Trend).[5]

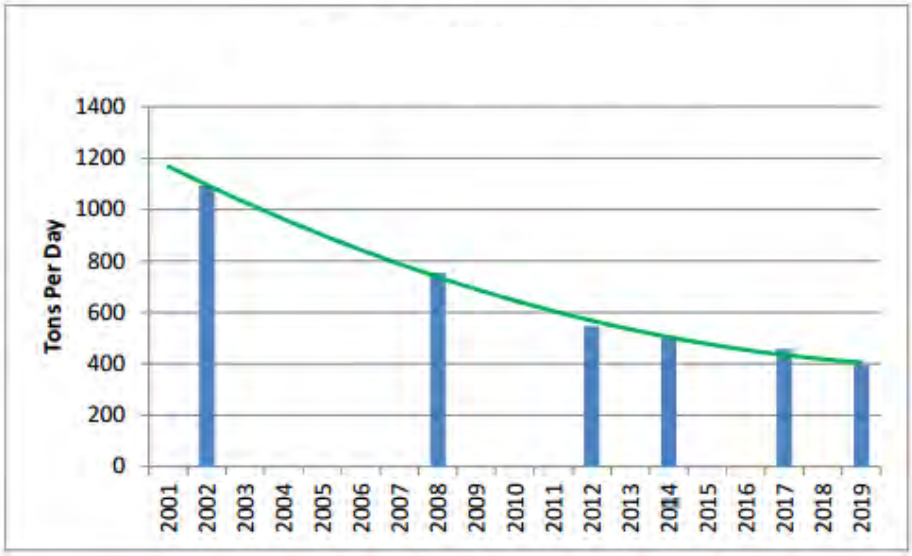

Figure 3.2-1
NO_X Emissions Trend

[4] 2012 Air Quality Management Plan for the South Coast Air Basin. (Introduction, pages 1-5; Available at: http://www.aqmd.gov/aqmp/2012aqmp/Final-February2013/MainDoc.pdf).

[5] The Final 2012 Air Quality Management Plan is available online at: http://aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan (See Chapter 5 of the plan).

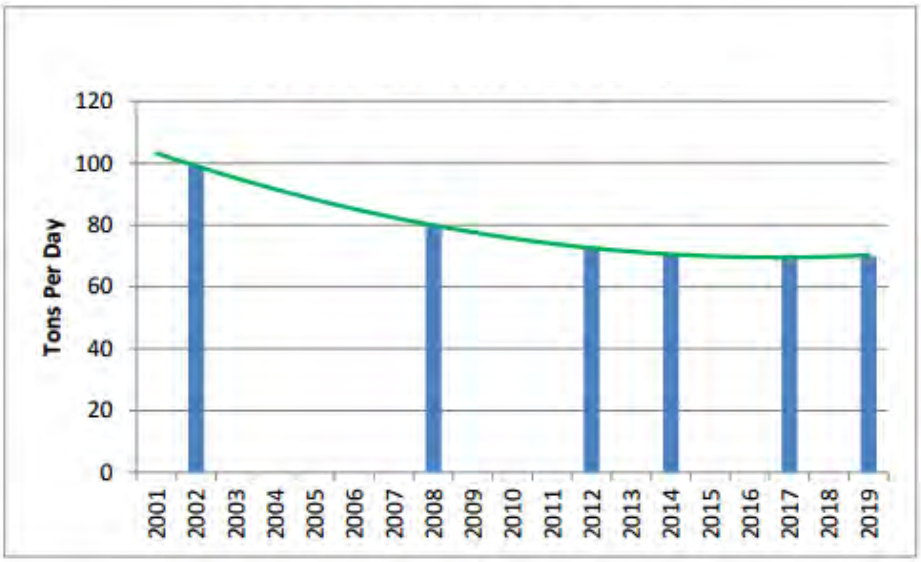

Figure 3.2-2
$PM_{2.5}$ Emissions Trend

3.2.2.4 Emissions from Existing Uses

The project site is currently developed with approximately 219,881 square feet of existing buildings, consisting primarily of restaurants, retail, and office uses. There are approximately 1,289 employees at the project site. Existing emissions from the project site are presented in in Table 3.2-4 below. Methodology on the calculating the emissions from existing uses is detailed in the Methodology Section (Section 3.2.4.1.2). Modeling Output is included in Appendix C2.

Table 3.2-4: Emissions From Existing Uses

Emissions Source	Estimated Emissions (lbs/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Existing						
Area Sources	5.75	0.00	0.02	0.00	0.00	0.00
Energy Sources	0.83	7.51	6.31	0.05	0.57	0.57
Mobile Sources	63.64	121.56	537.69	0.84	55.75	16.04
Total Existing Emissions	**70.22**	**129.08**	**544.03**	**0.88**	**56.32**	**16.62**

3.2.2.5 Sensitive Receptors

Sensitive receptors are individuals who are considered more sensitive to air pollutants than others. The reasons for greater than average sensitivity may include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods

of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

Currently, sensitive uses located in the project site vicinity include multi- and single-family residential uses. Specifically, the nearest residential developments are the series of multi-family residential buildings (i.e., The Village/Seascape apartments and condominiums) located adjacent to the project site border on the east. Further residential development continues to the east, and residents living aboard vessels ("liveaboards") exist within the project site and marinas to the north. There are approximately six liveaboards in Basin 3; however, these uses would not be present during construction. The nearest school is the South Bay Faith Academy located approximately a quarter mile to the east. The nearest sensitive receptors for the project site are shown in Figure 3.2-3. These receptors are representative of all of the sensitive receptors within the project area and are focused on because they are the closest and, therefore, the most directly impacted by project activities.

3.2.3 Regulatory Framework

3.2.3.1 Federal

The principal air quality regulatory mechanism at the federal level is the CAA and in particular, the 1990 amendments to the CAA and the NAAQS that it establishes. These standards identify the maximum ambient (background) concentration levels of criteria pollutants that are considered to be safe, with an adequate margin of safety, to protect public health and welfare. As discussed previously, the criteria pollutants include ozone, CO, NO_2 (which is a form of NO_X), SO_2 (which is a form of SO_X), PM_{10}, $PM_{2.5}$, and lead.

The CAA also requires each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The CAA Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. USEPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals.

The USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the Federal government, such as aircraft, locomotives, and interstate trucking. USEPA's primary role at the state level is to oversee the state air quality programs. USEPA sets federal vehicle and stationary source emissions standards and provides research and guidance in air pollution programs.

The Federal Government sets fuel efficiency standards for construction equipment. The first federal standards (Tier 1) were adopted in 1994 for all off-road engines over 50 horse power (hp) and to be phased in by 2000. In 1998 a new standard was adopted that introduced Tier 1 for all equipment below 50 hp and introduced the Tier 2 and Tier 3 standards. Tier 2 and Tier 3 standards for all equipment was to be phased in by 2008. Tier 4 efficiency requirements are contained in 40 Code of Federal Regulations Parts 1039, 1065, and 1068 (originally adopted in 69 Federal Register

Source: City of Redondo Beach, 2008; Psomas, 2014; Noble Consultants, Inc. and ESA, 2015

Figure 3.2-3
Nearest Sensitive Receptors

38958 [June 29, 2004], and were most recently updated in 2014 [79 Federal Register 46356]). Emissions requirements for new off-road Tier 4 vehicles are to be completely phased in by the end of 2015.

Similarly, the Federal Government sets national fuel efficiency standards for light duty vehicles, pursuant to the Corporate Average Fuel Economy (CAFE) standards. These standards were first enacted by Congress in 1927 to reduce energy consumption by increasing fuel economy in passenger vehicles and light duty trucks. The CAFE standards were most recently updated in 2010 (75 Federal Register 25324 et seq. [May, 7, 2010]; see also Health & Safety Code, Sections 39002, 43000 et seq).

3.2.3.2 State

3.2.3.2.1 California Air Resources Board (CARB)

CARB, a department of the California Environmental Protection Agency (Cal/EPA), oversees air quality planning and control throughout California by administering the SIP. Its primary responsibility lies in ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the federal CAA requirements, and regulating emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish CAAQS, and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same criteria pollutants as the federal CAA, and also include sulfates, visibility reducing particulates, hydrogen sulfide and vinyl chloride. They are also generally more stringent than the federal standards.

CARB is also responsible for regulations pertaining to TACs. The Air Toxics “Hot Spots” Information and Assessment Act was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. Assembly Bill (AB) 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release.

3.2.3.3 Regional

3.2.3.3.1 South Coast Air Quality Management District

Criteria Air Pollutants

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

Air Quality Management Plan

SCAQMD and the Southern California Association of Governments (SCAG) are responsible for preparing the AQMP, which addresses federal and state CAA requirements. The AQMP details goals, policies, and programs for improving air quality in the SCAB.

The 2012 AQMP was adopted by the SCAQMD Governing Board on December 12, 2012. The purpose of the 2012 AQMP for the SCAB is to set forth a comprehensive and integrated program that will lead the region into compliance with the federal 24-hour $PM_{2.5}$ air quality standard, and to provide an update to the SCAB's commitment towards meeting the federal 8-hour ozone standards (SCAQMD, 2013a). The AQMP would also serve to satisfy recent USEPA requirements for a new attainment demonstration of the revoked 1-hour ozone standard, as well as a vehicle miles travelled (VMT) emissions offset demonstration.[6] Specifically, the AQMP would serve as the official SIP submittal for the federal 2006 24-hour $PM_{2.5}$ standard, for which USEPA has established a due date of December 14, 2012.[7] In addition, the AQMP updates specific new control measures and commitments for emissions reductions to implement the attainment strategy for the 8-hour ozone SIP. The 2012 AQMP sets forth programs which require integrated planning efforts and the cooperation of all levels of government: local, regional, state, and federal. Currently, SCAQMD staff has already begun initiating an early development process for the 2015 AQMP.

The proposed project is located within the SCAB, which is under the jurisdiction of the SCAQMD. As such, SCAQMD's 2012 AQMP is the applicable air quality plan for the proposed project. Projects that are consistent with the regional population, housing, and employment forecasts identified by SCAG are considered to be consistent with the AQMP growth projections, since the forecast assumptions by SCAG forms the basis of the land use and transportation control portions of the AQMP. Additionally, because SCAG's regional growth forecasts are based upon, among other things, land use plans, a project that is consistent with the land use designated in the City's land use plan would also be consistent with the SCAG's regional forecast projections and ,thus, also with the AQMP growth projections.

As discussed further in Section 3.9 Land Use, the Coastal Zoning Ordinance, which is a part of the City's Local Coastal Program (LCP), governs the land use within the coastal zones and provides a guide for growth and development of the City to carry out the California Coastal Act. Additionally the Coastal Zoning Ordinance provides a mechanism to permit development consistent with the General Plan and LCP. Per the Coastal Zoning Ordinance and the Coastal Land Use Plan (also part of the LCP), development within the Coastal Commercial (CC) Zones, which includes most of the project site as well as other areas within the waterfront, is limited to a maximum of 400,000 square feet, based on the existing floor area on April 22, 2008.

The proposed project is consistent with the uses permitted within the CC Zones, including retail, recreation equipment rentals, commercial recreation, restaurants, office, hotels, bars and restaurants, recreation facilities and marinas. The proposed project would add 290,113 square feet of net new development within the CC Zones based on the existing development on April

---

[6] Although the federal 1-hour ozone standard was revoked in 2005, the USEPA has proposed to require a new 1-hour ozone attainment demonstration in the South Coast extreme ozone nonattainment area as a result of a recent court decision. Although USEPA has replaced the 1-hour ozone standard with a more health protective 8-hour standard, the CAA anti-backsliding provisions require that California have approved plans for attaining the 1-hour standard.

[7] Although the 2012 AQMP was approved by the SCAQMD Board on December 7, 2012, the plan did not get submitted to the USEPA by December 14, 2012 as it first required approval from CARB. The 2012 AQMP was subsequently approved by CARB on January 25, 2013, and as of February 13, 2013 the plan has been submitted by CARB to the USEPA

22, 2008[8]. In addition to the proposed project, two other projects (the Harbor Patrol and the Shade Hotel) within the CC Zone added 2,702 and 34,309 net new square feet, respectively. When combined, the total increase in net new square footage since April 22, 2008 from the Harbor Patrol, Shade Hotel, and the proposed project would be 327,124 square feet. This is below the maximum of 400,000 net new square feet allowed under the LCP.

Because the proposed project in addition to the other harbor projects (e.g., Harbor Patrol and Shade Hotel) would result in less than 400,000 square feet of net new development, the development of the proposed project is considered to be consistent with both the LCP and the General Plan (see Section 3.9 Land Use for additional discussion about project consistency with the LCP and General Plan). As the proposed project is consistent with the General Plan development expectations, the population growth resulting from the proposed project is anticipated to be consistent with SCAG's regional forecast projections and, in turn, would also be consistent with the growth projections accounted for in SCAQMD's AQMP.

The SCAG's employment projections show that employment for Redondo Beach was 30,100 in 2008. Employment is anticipated at 30,600 in 2020 and 31,600 in 2035.[9] This indicates that the AQMP was based on an employment growth of 500 jobs by 2020 and 1,500 total by 2035. The proposed project would increase employment by 1,438 jobs at buildout in 2019. The proposed project would exceed the SCAG's employment projections by nearly 1,000 jobs, and, therefore, would exceed the employment growth projections accounted for in the 2012 AQMP. While the project would exceed the employment assumptions in the AQMP, it would be consistent with the AQMP as a whole,[10] and would not interfere with the region's ability to comply with federal and state air quality standards.

As discussed in Section 3.6.3.2.2 and 3.6.4.3.2 in Section 3.6 Greenhouse Gases, regional land use planning efforts have focused upon providing infill development, development in transit priority areas, and reducing per capita Vehicle Miles Traveled (VMT). As discussed in the 2012 SCAG Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), "SB 375 enhances the State's goals of Assembly Bill 32, the Global Warming Solutions Act of 2006…the SCS focuses the majority of new housing and job growth in high-quality transit areas and other opportunity areas in existing main streets, downtowns, and commercial corridors, resulting in an improved jobs-housing balance and more opportunity for transit-oriented development. This overall land use development pattern supports and complements the proposed transportation network that emphasizes system preservation, active transportation, and transportation demand management measurers" (2012 SCAG RTP/SCS, page 8). As discussed under Impact GHG-2 in Section 3.4.6.3.2 in Section 3.6 Greenhouse Gases, the proposed project would be a redevelopment project that would be located within walking distance to public transportation as well as existing residential uses within the City. The location of the project in close proximity to transit, the California Coastal Trail (a well-utilized pedestrian/bicycle path), and existing residences. The proposed project also falls within a transit priority area (under SB 743), as discussed in detail in Section 3.13

[8] The current square footage within the project site is 219,881 square feet, which is 13,945 square feet less than existed on April 22, 2008. As shown in Table 2-4 in Chapter 2 Project Description, based on the existing 219,881 square feet of floor area, the proposed project would result in 304,058 square feet of net new development.

[9] Growth forecasts are available here: www.scag.ca.gov/Documents/2012AdoptedGrowthForecastPDF.pdf

[10] The standard of review for planning consistency is discussed in Section 3.9.4.1.

Transportation and Traffic. Furthermore, the proposed project would not exceed the SCAQMD's 4.6 $MTCO_2e$ annual project-level service population emissions threshold.

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction anticipated under the proposed project would include the following[11] (additional SCAQMD rules relevant to other resource areas are described in other chapters of this Draft EIR):

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

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

Rule 403 – Fugitive Dust. This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust, and identifies measures to reduce fugitive dust. This includes soil treatment for exposed soil areas. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. As indicated in SCAQMD's latest guidance they are "increasing reliance on non-toxic chemical dust suppressants to stabilize soils" (SCAQMD, 2014b).[12] Even if the project site utilizes water as a dust suppressant, the City of Redondo Beach utilizes non-potable water.

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

---

[11] Rules 401, 402, 403, can be found here: http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-iv Rule 1113 can be found here: http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xi

[12] Source available here: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2014/2014-jun6-026.pdf?sfvrsn=2. With additional information available here: http://www.aqmd.gov/docs/defaultsource/Agendas/Governing-Board/2014/2014-jul11-001.pdf?sfvrsn=2

Toxic Air Contaminants

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

The Air Toxics Control Plan (March 2000, revised March 26, 2004) is a planning document designed to examine the overall direction of SCAQMD's air toxics control program. It includes development and implementation of strategic initiatives to monitor and control air toxics emissions. Control strategies that are deemed viable and are within SCAQMD's jurisdiction will each be brought to the SCAQMD Board for further consideration through the normal public review process. Strategies that are to be implemented by other agencies will be developed in a cooperative effort, and the progress will be reported back to the Board periodically.

In May 2015 the SCAQMD completed the Multiple Air Toxics Exposure Study IV (MATES IV) (SCAQMD, 2015). MATES IV is a monitoring and evaluation study conducted in the SCAB and is a follow up to previous air toxics studies. The study is a follow up to the 2008 MATES III study and consists of several elements including a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the SCAB (SCAQMD, 2008a). The study focuses on the carcinogenic risk from exposure to air toxics (SCAQMD, 2008b). However, it does not estimate mortality or other health effects from particulate exposures. MATES IV shows that the region around the project site area has an estimated carcinogenic risk of up to 326 in a million (SCAQMD, 2015). These model estimates were based on monitoring data collected at 10 fixed sites within the SCAB.

3.2.4 Impacts and Mitigation Measures

3.2.4.1 Methodology

3.2.4.1.1 Criteria Pollutants

Air pollutant emissions associated with the proposed project would result from operations of the future commercial and recreational developments at the project site and from traffic volumes generated by these new uses. Construction activities would also generate air pollutant emissions at the project site and on roadways resulting from construction-related traffic.

Construction Impacts

Short-term construction-generated emissions of criteria air pollutants and ozone precursors associated with the proposed project were modeled using the California Emissions Estimator Model (CalEEMod),[13] Version 2013.2.2, as recommended by SCAQMD where applicable. For the waterfront development, where water-based equipment is used, emissions were calculated outside of CalEEMod and based on CARB's OFFROAD emission rates for the provided equipment, as water-based equipment is not included in CalEEMod. These emissions estimates were used to determine whether short-term construction-related emissions of criteria air pollutants associated with the proposed project would exceed SCAQMD's applicable regional thresholds and whether mitigation would be required. Modeling was based on project-specific data provided by the applicant of the proposed project, where available. Where project-specific information was not available (for example the age and fuel efficiencies of the vehicle fleet), default modeling settings or reasonable assumptions based on other similar projects were used to estimate criteria air pollutant and ozone precursor emissions. Modeling Assumptions, calculations, input and output files are provided in Appendix C1.[14]

In addition, to determine whether or not construction activities associated with the proposed project would create significant adverse localized air quality impacts on nearby sensitive receptors, the worst-case daily emissions contribution from the proposed project were compared to SCAQMD's localized significance thresholds (LSTs). The LSTs developed by SCAQMD are based on the pounds of emissions per day that can be generated by a project without causing or contributing to adverse localized air quality impacts, and only applies to the following criteria pollutants: CO, NOx, PM_{10}, and $PM_{2.5}$.

For the purpose of analyzing localized air quality impacts, SCAQMD has developed LSTs for three project site sizes: one-acre, two-acre and five-acres. The LSTs established for each of the aforementioned site acreages represent the amount of pollutant emissions that would not exceed the most stringent applicable federal or state ambient air quality standards. Project construction would occur in three distinct areas: northern portion, southern portion and Basin 3. Because Basin 3 is adjacent to both the northern portion and southern portion and is directly adjacent to the closest sensitive receptors, the emissions from Basin 3 were added to both the northern portion and southern portion to represent a worst-case emissions scenario at the closest receptors (i.e., northern portion plus Basin 3 emissions, and southern portion plus Basin 3 emissions). Additionally, because the same receptors are located close to both the northern portion and southern portion, the emissions for the northern portion, southern portion,

[13] The CalEEMod model is available online here: http://www.aqmd.gov/caleemod/download-model. The User's Guide for the model is available online here: http://www.aqmd.gov/caleemod/user's-guide.

[14] Note that the modeling was originally completed assuming that there would be more restaurant development than retail. Refinements to the proposed project land uses (e.g., less restaurant and more retail uses) do not change the overall square footage of land use nor the level of activity to accomplish this development; therefore, the construction emissions estimated for increased retail/decreased restaurant scenario would result in the same maximum daily construction emissions as under the original increased restaurant/decreased retail scenario that was previously modeled.

and Basin 3 were combined to determine a worst-case potential for these receptors as it is possible that construction activities would occur at all three areas simultaneously[15].

The land acreages associated with each of the proposed project's development areas (i.e., northern portion plus Basin 3 and, southern portion plus Basin 3) are greater than five acres. In addition, construction activities could occur across the entirety of those acreages on a daily basis. Although project construction would occur on more than five acres, an evaluation of the proposed project's construction emissions against SCAQMD's LSTs for a five-acre site is conducted to provide a screening-level analysis. Under conditions where the proposed project's on-site construction emissions would exceed the LSTs for a five-acre site, air dispersion modeling using AERSCREEN would be conducted to evaluate the potential localized air quality impacts of the proposed project on its surrounding off-site sensitive receptors. However, under conditions where it is determined that the proposed project's peak daily construction emissions would not exceed the LSTs for a five-acre site, then it can be concluded that the proposed project's construction emissions would not result in any adverse localized air quality impacts on its surrounding off-site sensitive receptors.

In conducting the localized air quality analysis, which focuses only on on-site emissions, the proposed project's on-site construction emissions generated from combustion sources (e.g., off-road construction equipment) under a worst-case construction scenario were extracted from the CalEEMod model run outputs.[16] Additionally, to account for the combustion emissions associated with vehicles traveling on-site within the project site during construction, a separate CalEEMod model run was performed where the one-way travel distance for the worker vehicles and vendor and haul trucks were modified to 0.5 mile, specifically to address the on-site vehicle travel analyzed in the LST analysis. Overall, the daily total on-site combustion, mobile, and fugitive dust emissions associated with each project construction phase (as well as construction phase overlaps) were combined and evaluated against SCAQMD's LSTs for a five-acre site. The CalEEMod inputs and outputs for the LST runs are included in Appendix C with their respective development phase.

Operational Impacts

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors associated with the proposed project, including mobile- and area-source emissions, were also quantified using the CalEEMod computer model. Area-source emissions, which are widely distributed and made of many small emissions sources (e.g., building heating and cooling units, electricity, landscaping equipment, consumer products, painting operations, etc.), were modeled according to the size and type of land use proposed. Mass mobile-source emissions were modeled based on the daily vehicle trips that would result from the proposed project. Vehicle fleet mix and fuel efficiencies for mobile-source emissions were based on the CalEEMod default assumptions. Project trip generation rates were obtained from the proposed project's traffic analysis (Section 3.13 Traffic and Transportation and Appendix L1). Because the proposed project would remove existing uses, the emissions from the existing uses were

[15] Conservatively the emissions from the individual Northern Portion plus Basin 3 and Southern Portion plus Basin 3 sites were added together. This over-estimates emissions slightly as it double counts the Basin 3 emissions. However, this represents a worst case emissions scenario.

[16] The CalEEMod model run outputs include the total construction emissions generated both on-site and off-site (e.g., on-road haul truck and delivery truck trips).

also calculated using CalEEMod. The emissions from the existing uses are subtracted from the emissions of the proposed project to provide a net increase in pollutants that would occur from the implementation of the proposed project. The resulting net long-term operational emissions were then compared with the applicable SCAQMD thresholds for determination of significance. Modeling Assumptions, input and output files are provided in Appendix C1, C3 and C4.

In addition to the regional air quality impacts, the proposed project's net localized air quality impacts during operation were also analyzed by extracting the on-site operational emissions from the CalEEMod model run for the proposed project and evaluating those emissions against SCAQMD's applicable operational LSTs. Although the acreages for development of the proposed project exceeds five acres in size, the proposed project's localized net operational emissions for each were compared to the five-acre LST thresholds to provide a screening-level analysis. If the proposed project's localized net operational emissions exceed the five-acre LSTs, dispersion modeling of the emissions is conducted to evaluate the potential localized air quality impacts of the proposed project on its surrounding off-site sensitive receptors. Where localized operational emissions do not exceed the five-acre LSTs, the proposed project development phase is considered to be less than significant. Since SCAQMD only provides LSTs at receptor distances of 82, 164, 328, 656, and 1,640 feet from the emissions source, the LST analysis conservatively assumed a receptor distance of 82 feet from the project site to evaluate the potential localized air quality impacts associated with the proposed project's development.[17] Similar to the construction LSTs, a separate CalEEMod model run was performed specific to the LST methodology to account for on-site mobile emissions where the one-way travel distance for vehicles on the project site was modified to 0.5 mile. This was used to approximate average travel distance within the project site. Emissions from on-site travel was based on the percentage difference between the 0.5-mile on-site travel and the average trip distance for the project site.

CO Hotspots

Historically, qualitative screening procedures and guidelines contained in the Transportation Project-Level Carbon Monoxide Protocol (the Protocol) were used to determine whether a project poses the potential for a CO hotspot (UCD ITS, 1997). However, CO concentrations have declined dramatically in California since the adoption of the 1997 guidance, due to existing controls and programs in most areas of the state, including the region in which the proposed project is located, have no problem meeting the state and federal CO standards. Additionally, CO hotspots have not been seen in the most congested intersections in the region in well over a decade. CO measurements and modeling were important in the early 1980s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, fewer emissions from new vehicles and improvements in fuels (CARB, 2004). The reduction in older polluting vehicles and emissions controls on newer vehicles have increased the number of vehicles that can idle and the length of time that a number of vehicles can idle before emissions would trigger a CO impact. This increase in vehicle idling has made the use of the level of service (LOS) as an indicator obsolete for

[17] Although some sensitive receptors may be located slightly closer than 82 feet of the project site, SCAQMD's LST methodology states that projects with boundaries located closer than 82 feet (25 meters) to the nearest receptor should use the LSTs for receptors located at 82 feet.

determining CO impacts. For this reason, several air districts, including the Bay Area Air Quality Management District (BAAQMD) (BAAQMD, 2009), have adopted guidelines that focus on criteria other than LOS and percentage traffic increase, and instead focus on total volumes and consistency with congestion management plans.

For the purposes of this analysis, total hourly vehicle volumes through intersections and an assessment of the proposed project's consistency with congestion management plans would be conducted to evaluate potential impacts associated with CO hotspots. Intersections that exceed the BAAQMD screening criteria (detailed under Thresholds of Significance below) would be required to conduct dispersion modeling to determine the potential impact from the impacted intersections.

Toxic Air Contaminants

TAC generators located within the SCAB are associated with intensive diesel-fueled vehicle use (such as warehouses) and specific types of facilities such as dry cleaners using perchloroethylene, gas stations, distribution centers, and ports. The proposed project consists of commercial and recreational developments that would not include any of the aforementioned TAC emitter facilities nor would it be anticipated to include diesel-powered emergency backup generators. It is not anticipated that off-site receptors would be impacted by TAC emissions resulting from project's operations. Therefore, this analysis discusses impacts from TACs on a qualitative basis.

TACs in the form of diesel particulate matter (DPM) would be emitted during project construction. However, these emissions would be relatively short term (compared to the lifetime assessment of risk from TAC exposure), would vary on location depending on where construction was taking place, and only occur intermittently over the construction period while diesel vehicles were in operation. It is not anticipated that off-site receptors would be impacted by TAC emissions resulting from project's construction. Therefore, this analysis discusses impacts from TACs on a qualitative basis.

3.2.4.2 Thresholds of Significance

The proposed project would result in significant impacts associated with air quality if it would:

AQ-1 Violate any *ambient* air quality standard or contribute substantially to an existing or projected air quality violation;

AQ-2 Expose sensitive receptors to substantial pollutant concentrations; or

AQ-3 Create objectionable odors during construction that affects a substantial number of people.

Cumulative Analysis

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);

The significance thresholds described above are based in part upon Appendix G of the *CEQA Guidelines* and the significance criteria established by the applicable air quality management or air pollution control district thresholds. As such, the significance thresholds and analysis

methodologies in SCAQMD's *CEQA Air Quality Handbook* are used in evaluating project impacts. SCAQMD has established daily mass thresholds for regional pollutant emissions, which are shown in Table 3.2-5. In Table 3.2-5 the criteria pollutant thresholds are used to address Impacts AQ-1 and AQ-3. The TAC thresholds are used to address quantitative analysis of TACs with respect to sensitive receptors (Impact AQ-2) where necessary.

Aside from regional air quality impacts, projects in the SCAB are also required to analyze local air quality impacts. As discussed previously, SCAQMD has developed LSTs that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and, thus, would not cause or contribute to localized air quality impacts. LSTs are developed based on the ambient concentrations of that pollutant for each of the 38 source receptor areas (SRAs) in the SCAB. The localized thresholds, which are found in the mass rate look-up tables in SCAQMD's *Final Localized Significance Threshold Methodology* document, were developed for use on projects that are less than or equal to five acres in size or have a disturbance of less than or equal to five acres daily. LSTs are only applicable to the following criteria pollutants: NOx, CO, PM_{10}, and $PM_{2.5}$. As discussed previously, the construction and operational LSTs for a five-acre site in SRA 3 (Southwest Coastal LA County), which are shown in Table 3.2-6, would be used to provide a screening-level evaluation of the proposed project's localized air quality impacts. Where the proposed project emissions would exceed the LSTs for a five-acre site, then the emissions are evaluated using the AERSCREEN dispersion model and compared to the following thresholds: NOx – 0.25 ppm; CO-1hr – 20 ppm; CO-8hr – 9ppm; PM_{10} – 10 $\mu g/m^3$; and $PM_{2.5}$ 10.4 $\mu g/m^3$. The screening level thresholds identified in Table 3.2-6 are used to address impacts to sensitive receptors with respect to regional criteria pollutants under Impact AQ-2.

It should be noted that with regards to NOx emissions, the two principal species of NOx are NO and NO_2, with the vast majority (95 percent) of the NOx emissions being comprised of NO. However, because adverse health effects are associated with NO_2, not NO, the analysis of localized air quality impacts associated with NOx emissions is focused on NO_2 levels. For combustion sources, SCAQMD assumes that the conversion of NO to NO_2 is complete at a distance of 5,000 meters from the source.

Most odor emissions were determined to be less than significant in the Initial Study (See Appendix A of this Draft EIR). Consequently, the analysis in the EIR is limited to addressing the odor impacts associated with stockpiling of dredged materials during construction activities.

Table 3.2-5: SCAQMD Regional Air quality Significance Thresholds

Pollutant	Mass Daily Thresholds (lbs/day)	
	Construction	Operations
Oxides of Nitrogen (NO_X)	100	55
Reactive Organic Gases (ROG)	75	55
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Oxides of Sulfur (SO_X)	150	150
Carbon Monoxide (CO)	550	550
TACs (including carcinogens and non-carcinogens	Maximum Incremental Cancer Risk ≥ 10 in 1 million people Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million people) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	

Source: SCAQMD, 2011

a. As the proposed project would not involve the development of any major lead emissions sources, lead emissions would not be analyzed further in this report.

Table 3.2-6: SCAQMD Localized Significant Thresholds

Pollutant Monitored Within SRA 3 – Southwest Coastal LA County	***Allowable emissions (pounds/day) as a function of receptor distance (feet) from site boundary***				
	82 (ft)	**164 (ft)**	**328 (ft)**	**656 (ft)**	**1,640 (ft)**
Construction Thresholds – 5 Acre Site					
Nitrogen Oxides (NO_x)[a]	197	189	202	222	277
Carbon Monoxide (CO)	1,823	2,108	2,771	4,377	10,467
Respirable Particulate Matter (PM_{10})	15	46	60	88	171
Fine Particulate Matter ($PM_{2.5}$)	8	11	19	35	96
Operational Thresholds – 5 acre Site					
Nitrogen Oxides (NO_x)[a]	197	189	202	222	277
Carbon Monoxide (CO)	1,823	2,108	2,771	4,377	10,467
Respirable Particulate Matter (PM_{10})	4	12	15	21	41
Fine Particulate Matter ($PM_{2.5}$)	2	3	5	9	24

Source: SCAQMD, 2009

a. The localized thresholds listed for NOx in this table take into consideration the gradual conversion of NO to NO2.The analysis of localized air quality impacts associated with NOx emissions focuses on NO2 levels as they are associated with adverse health effects.

CO Hotspot

As discussed in the methodology section above, the decrease in emissions of CO from vehicles has increased the number of vehicles that can idle at an intersection before CO impacts occur. Because of this, the use of the LOS as an indicator for CO impacts has become obsolete. For this reason, several air districts, including the BAAQMD (BAAQMD, 2009), have adopted guidelines that focus on criteria other than LOS and percentage traffic increase, and instead focus on total volumes and consistency with congestion management plans. The Lead Agency has the right to define thresholds that are appropriate for the project as long as the threshold can be supported. The BAAQMD threshold with respect to CO hotspots is a conservative and supported, quantitative threshold. Therefore, the BAAQMD thresholds have been incorporated for use with this project. This threshold is used to address impacts to sensitive receptors from localized CO emissions in Impact AQ-2. The BAAQMD criteria are as follows:

1. Consistency with an applicable congestion management program (CMP) established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.

2. Traffic volumes at affected intersections would not be increased to more than 44,000 vehicles per hour.

3. Traffic volumes at affected intersections would not be increased to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnels, parking garages, bridge underpass, natural or urban street canyon, below-grade roadway).

For the purposes of this analysis, intersections that exceed the BAAQMD screening criteria should conduct dispersion modeling to determine the potential impact from the impacted intersections. Where the screening values are not exceeded, the proposed project would be determined to be less than significant with respect to localized CO impacts.

3.2.4.3 Impacts and Mitigation

3.2.4.3.1 Proposed Project

The main components of the proposed project include the proposed demolition of approximately 207,402 square feet of existing structures, demolition/renovation of the existing Pier Parking Structure, and construction/renovation of up to approximately 523,939 square feet to include retail, restaurant, creative office, specialty cinema, a public market hall, and a boutique hotel, resulting in approximately 304,058 square feet of net new development. As part of the proposed project, the existing utilities, including water pipelines, wastewater conveyance pipelines, lift stations, and electric and natural gas lines would be upgraded/replaced to ensure adequate capacity is available to serve the project site.

The proposed project also includes proposed enhancements to public recreation and open space, including a new small craft boat launch ramp facility, the opening of Seaside Lagoon to King Harbor as a protected beach and hand launch area (currently the lagoon is not directly connected to the ocean), new and expanded pedestrian and bicycle pathways, as well as new high quality public open spaces. Site connectivity and coastal access would be increased by the establishment of a new pedestrian bridge across the Basin 3 entrance, a new pedestrian promenade along the water’s edge from the base of the Horseshoe Pier to Seaside Lagoon, the

Pacific Avenue Reconnection, and a new main street flanked by commercial uses and public walkways that would traverse the northern portion of the project site from north to south, approximately parallel to Harbor Drive. Project elements also include operational water quality benefits, measures to accommodate sea level rise projections, and replacement or upgrades to aging infrastructure.

3.2.4.4 Construction

As discussed in greater detail in Chapter 2 Project Description, construction of the proposed project would commence in 2017 and is anticipated to extend for approximately 27 to 30 months (2.25 to 2.5 years), from January 2017 through June 2019. In order to prepare a conservative analysis to assess the proposed project's peak daily construction emissions, many of the different types of construction activities were assumed to occur simultaneously. As detailed below, the proposed project would be implemented within two general areas within the project site: landside (including the northern and southern portions of the project site) and waterside. Each area has distinct construction assumptions associated with the proposed project elements. These assumptions are summarized in the Methodology Section (Section 3.2.4.1.1 above) and are detailed in Appendix C1. Kincaid's restaurant would not be removed as a part of the proposed project and would remain operational during construction. Emissions from the existing activities are part of the ambient conditions; therefore, existing emissions are not discussed independently in this analysis. During construction, the entire project site would be closed to the public, with the exception of some limited access to facilities on, and near, the Horseshoe Pier (i.e., access to Kincaid's restaurant at the northern segment of the Horseshoe Pier and the Monstad Pier). Vessels located in the Redondo Beach Marina/Basin 3, including liveaboards, would be temporarily relocated outside of the project site.

The number of construction workers would vary throughout the construction period. The maximum number of workers expected during the construction period is 280 workers on the north site and 153 workers on the south site, and an additional approximate 187 workers associated with construction of Basin 3 and the waterside project elements (for a total of approximately 620 workers during construction). For the purposes of the air quality analysis, the maximum of approximately 675 workers a day during the peak sequences of development was assumed. The number of vehicles transporting workers and materials to and from the project site would also vary on a daily basis but could reach up to approximately 1,895. The types and number of equipment would vary throughout the construction period, depending on the types of activities occurring. Portions of the project site would be used for construction staging areas and to provide parking for the construction workers' personal vehicles. No off-site construction employee parking or staging areas is anticipated. Haul trucks would access the project site from the Interstate 405 (I-405) freeway via Torrance Boulevard and Hawthorne Boulevard.

During the first phases of project construction on the northern portion of the project site (approximately the first 10 months), the construction staging area would be located on the utility easement south of the proposed parking structure. Following construction of the parking structure, the top level of the structure would be used for laydown/staging. During the first phases of project construction on the southern portion of the site (approximately the first 16 months), the plaza north of Torrance Circle would be used for laydown/staging. After construction of the proposed parking structure, the top level would be used for laydown/staging.

Construction of waterside elements would involve a combination of land-based and marine-based activities and equipment. For some waterside elements, barges would be used to transport and stage equipment and materials. The timing of the waterfront activities was not available at the time of the analysis; however, they are anticipated to occur within the 27- to 30-month period. As a worst-case scenario, it is conservatively assumed that up to five of the seven waterside project elements would occur during the same time and would overlap with the landside construction occurring within the northern and southern portions of the site.

Typical construction activities include servicing construction equipment at designated areas; transporting construction workers, supervisors, and inspectors on-site in light-duty trucks; and controlling dust, track-out, and erosion by complying with a Construction Storm Water Pollution Prevention Plan (SWPPP) that would require stormwater BMPs such as wetting, wheel washing, erosion barriers, hazardous materials containment, and site inspections.

Construction would require demolition of the existing on-site structures and hardscape, followed by the construction of new buildings and facilities. Heavy equipment such as concrete crushers, backhoes, cranes, crawler tractors, excavators, graders, loaders, rollers, pavers, and haul trucks would be used at the project site throughout the construction period. Detailed information on the types and numbers of construction equipment for each phase is presented included in Appendix C1.

Project construction would occur throughout the entire site during the 27- to 30-month construction period. It is anticipated that the various construction sequences within each general area (northern and southern portions of the landside and waterside) would have the potential to overlap with each other. The construction sequences and their estimated duration are shown in Table 3.2-7. The following is a detailed description of the assumptions associated with the construction sequences by area.

3.2.4.4.1 Landside Construction

In general, construction activities associated with the landside construction would occur simultaneously within the northern and southern portions of the site and includes four main construction sequences: demolition, site preparation, building construction, and landscaping/hardscape improvements. Following is a summary of activities associated with each construction sequence. Additional discussion is provided in Chapter 2 Project Description.

Demolition

Demolition activities associated with the landside construction involve removal of existing structures, asphalt pavement, concrete sidewalks, parking lots/structures, and associated infrastructure. Minor utilities would be abandoned in place or removed if they would interfere with installation of new infrastructure. Wood frame and other small structures would be demolished and delivered to an off-site waste handling (i.e., construction and demolition waste recycling) facility. Concrete would be mechanically crushed on-site and the material used as fill on-site. Demolition would commence on the northern portion of the site first. Once concrete crushing is completed on the northern portion of the site, the concrete crusher would be moved to the southern portion of the site. A portion of the concrete debris generated from the southern portion of the site would be used as fill on the northern portion of the site.

The moving of crushed concrete on-site is anticipated to result in an average of 145 trucks per day over a 10-day period within the project site. Construction equipment expected to be used during this phase includes breakers, concrete crushers, excavators, loaders, and dump trucks.

Site Preparation

Site preparation consists of earthwork and grading activities required to develop the proposed project's infrastructure, including streets and sidewalks, storm drains, collection and conveyance systems for water, sewer, and stormwater, and distribution systems for gas, electricity, and telephones. Site earthwork and grading activities would typically be performed using standard construction equipment, such as excavators, loaders, scrapers, graders, and dump trucks. Import fills and export material would be loaded and transported using loaders and standard size haul trucks.

Table 3.2-7: Anticipated Project Construction Schedule

Phase	Start Date	End Date	Total Days
Landside - Northern Portion of Site			
Mobilization	2017/01/03	2017/02/20	35
Demolition	2017/02/07	2017/04/03	40
Site Utility Demolition	2017/03/21	2017/05/22	45
Earthwork	2017/04/25	2017/05/30	26
Site Utilities North	2017/05/02	2017/08/23	82
Structural Concrete North	2017/05/31	2017/09/21	82
Parking Structure North	2017/06/28	2018/06/28	262
Core and Shell North	2017/08/10	2018/11/14	330
Parking Structure North	2018/01/01	2018/06/28	129
Site Work	2018/04/27	2018/12/14	165
Interior Construction North	2018/04/27	2019/04/09	248
Landside - Southern Portion of Site[a]			
Demolition	2017/02/07	2017/06/26	100
Site Utility Demolition	2017/07/13	2017/09/07	41
Retaining Wall	2017/07/13	2017/11/17	92
Earthwork	2017/08/10	2017/11/17	72
Site Utilities South	2017/08/24	2017/12/19	84
Structural Concrete South	2017/11/20	2018/02/01	54
Parking Structure South	2017/11/20	2018/10/16	237
Core and Shell South	2018/01/05	2019/02/26	298
Parking Structure South	2018/05/01	2018/10/16	121
Site Work	2018/10/17	2019/05/07	145
Interior Construction South	2018/02/02	2019/06/05	349
Off-site Improvements	2018/04/13	2018/12/31	187

Table 3.2-7: Anticipated Project Construction Schedule

Phase	Start Date	End Date	Total Days
Waterside Elements			
Bulkhead Repair	2017/03/01	2017/04/05	26
Small Craft Boat Launch Ramp	2017/03/01	2017/11/01	180
Sportfishing Pier	2017/03/01	2017/06/16	78
Seaside Lagoon	2017/03/01	2017/10/11	165
Redondo Beach Marina in Basin 3	2017/03/01	2017/06/26	136
Horseshoe Pier	2017/03/01	2017/7/11	95
Pedestrian Bridge	2017/03/01	2017/08/2	111

a. The area associated with the International Boardwalk, elevated walkway and proposed Pacific Avenue Reconnection is assumed under the Landside - Southern Portion of the Site.

Approximately 130,000 cubic yards of fill would be required (50,000 cubic yards in the northern portion of the site and 80,000 cubic yards in the southern portion of the site). It is estimated that 45,000 cubic yards of fill would come from on-site concrete debris (20,000 cubic yards would be used in the northern portion of the site, and 25,000 cubic yards would be used in the southern portion of the site). The remaining 85,000 cubic yards of fill required would be imported to the project site (30,000 cubic yards to the northern portion of the site and 55,000 cubic yards to the southern portion). Earthwork in the northern portion of the project site is scheduled to take approximately 26 days, with the southern site earthwork estimated at approximately 72 days. Assuming 30,000 cubic yards for the northern portion of the site (assuming 14 cubic yards per truck) and a 26-day grading phase, up to 83 trucks per day are estimated over the 26 days of earthwork. Assuming 55,000 cubic yards for the southern portion of the site and a 72-day grading phase, up to 55 trucks per day are estimated over the 72 days of earthwork.

Building Construction

Building construction would include development of new core/shell structures and coincide with the completion of the utilities and walkways. The existing shoreline along the project boundary, consisting of a variety of edge conditions (e.g., piers, wharves, and rock bulkheads), would also be repaired and improved to reduce erosion, provide public access, protect against present and future coastal flooding due to rising sea levels, and to extend the life of the structural edges. Cast-in-place construction would utilize heavier equipment such as cranes and concrete pumps.

Table 3.2-8 details the building construction to occur on both the northern and southern portions of the project site. This phase of the northern portion development is anticipated to begin in February of 2017 and continue until April 2019. This phase of the southern portion development is anticipated to begin in February of 2017 and continue through June of 2019. As seen in Table 3.2-7, this phase for the northern and southern portions would overlap not

only with other phases in northern/southern portions of the site, but also with the construction phases associated with the waterside. [18]

Table 3.2-8: Project Development

	Northern Portion of Site		*Southern Portion of Site*	
Land Use Type	**Square Feet**	**Seats/Stalls**	**Square Feet**	**Stalls**
Retail/Restaurant/Office/ Concession	242,180	-	110,677	-
Movie Theatre	48,117	700	0	-
Hotel	0	-	122,965	-
Parking Structure	-	757	-	1,157
Surface Parking Lots	-	149	-	0

= N/A for that category

Landscaping/Hardscape Improvements

The final sequence consists primarily of planting of new landscaping, the installation of hardscape paving, and the application of architectural coatings on buildings. Existing landscaping would be removed or stored and replanted on-site.

Waterside Construction

The waterside construction activities consist of seven individual elements. The waterside construction activities would occur during the 2017 through 2019 construction schedule, overlapping with northern and southern portion construction. The exact timing of construction of the waterside elements is currently unknown; therefore, conservative assumptions have been made on construction sequencing that present a worst-case scenario. These assumptions are summarized in the Methodology Section (Section 3.2.4.1.1 above) and are detailed in Appendix C1. As shown in Table 3.2-7, for modeling purposes it is assumed that all construction would occur in 2017. This is highly unlikely; however, this assumption would result in the highest (i.e., worst-case) equipment emissions because the assumed fleet mix would be older, and thus, would have higher emissions. While all phases are modeled as if they would occur in early 2017, due to site constraints, the worst-case construction analysis conducted for the proposed project assumes that five of the seven waterside construction elements would occur at the same time, and would overlap with both the northern and southern portion construction sequences that generate the highest daily emissions. This construction

[18] Note that the modeling was originally completed assuming that there would be more restaurant development than retail. Refinements to the proposed project land uses (e.g., less restaurant and more retail uses) do not change the overall square footage of land use nor the level of activity to accomplish this development; therefore, the construction emissions estimated for increased retail/decreased restaurant scenario would result in the same maximum daily construction emissions as under the original increased restaurant/decreased retail scenario that was previously modeled. Therefore, the square footages represented in the construction modeling output in Appendix C will differ from what is in Table 3.2-8.

scenario presents the worst-case emissions estimate, since any other waterside construction schedule would be anticipated to result in lower overall emissions.

Construction schedules for each of the phases are listed in Table 3.2-7 by number of active on-site days of construction. Construction of the individual waterside elements is not anticipated to occur on consecutive days and, therefore, schedule lengths identified in the more detailed summary of each waterside element presented below may differ slightly from Table 3.2-7. The schedule lengths in the summary presented below also account for project mobilization, off-site materials fabrication, material procurement, and sequencing of work that may not be associated with any on-site construction activities.

Below is a summary of the construction associated with the seven waterside elements:

Bulkhead Repair: The Bulkhead Repair project element includes the repair and replacement of the existing deteriorated concrete cap. The Bulkhead Repair project element is anticipated to be completed within six to eight weeks and would occur in two distinct construction sequences: Bulkhead Cap Demolition and Bulkhead Cap Replacement.

All work is assumed to be completed using conventional land-based equipment. Most of the demolition work would be accomplished using a backhoe with recyclable material being disposed of at a facility in Gardena. All non-recyclable material would be disposed of at an appropriate off-site location. Construction activities would be performed using a skid steer loader and framing crew. The new cap would be formed with pour-in-place concrete methods.

Small Craft Boat Launch Ramp: The Small Craft Boat Launch Ramp project element includes the development of a two-lane concrete boat ramp, boarding floats, and associated parking. The entire proposed project is anticipated to be completed within eight months and would consist of four distinct construction sequences: Demolition Work; Breakwater Construction; Launch Ramp Construction; Parking Lot Construction.

Demolition activities would be accomplished using conventional land-based construction equipment with recyclable materials disposed of at a facility in Gardena. Non-recyclable materials would be disposed of at an appropriate facility. Assumptions on construction hauling are included in Appendix C1.

Construction activities would consist of a combination of marine and conventional land-based equipment. All stone to construct the breakwater and launch ramp is anticipated to be delivered via barge from the Pebbly Beach Quarry on Catalina Island. The launch ramp would be finished with a pour-in-place concrete section above the tide level and pre-cast sections for underwater. Asphalt for the parking lot would be delivered from a batch plant in Inglewood.

Sportfishing Pier: The Sportfishing Pier project element includes the demolition of the existing pier and a project option that includes the replacement with a new pier with similar dimensions and footprint. Should the pier be replaced, construction would be completed within nine months. The Sportfishing Pier project element would be completed in two sequences: Demolition Work and Pier Construction.

Demolition activities would be accomplished using a derrick crane and barges for the disposal of debris. Debris would be taken by barge to a site in the Port of Long Beach/Los Angeles area. Recyclable material would be hauled from the barge to a facility in Gardena while non-

recyclable material would be disposed of at appropriate facility. Creosote timber would be trucked to an approved landfill in Rialto.

Should the Sportfishing Pier be reconstructed, construction activities would be accomplished using a derrick barge as well as conventional land-based equipment. Construction materials would be delivered by barge and truck. Piles would be placed from the barge and a land-based crane would be used to install the piles for the first two bents of the pier. Construction of the deck would be completed using a hydraulic crane.

Seaside Lagoon: The Seaside Lagoon project element includes the conversion of the existing interior swimming lagoon into an embayment directly connected to King Harbor. The element is estimated to be completed within four months. The Seaside Lagoon project element would be completed in two phases: Demolition Work and Lagoon Construction.

The existing hand launch and dinghy dock would be removed and excavated to form the lagoon inlet to the Outer Harbor. A two-acre interior area would then be graded to support a semi-circular sandy beach with landscape improvements. Demolition would be completed using conventional land-based earth moving equipment. Recyclable material would be hauled to a site in Gardena and non-recyclable debris would be properly disposed of off-site.

The dredging of the entrance to the lagoon would generate approximately 6,300 cubic yards of sediment. If the material is found to be suitable, all or a portion of the dredged material would be used as new beach fill or placed in the harbor. If dredge material is cobble/rock, this could be used as fill for the small craft boat ramp breakwater or other on-site fill. Therefore, disposal of the dredge material is assumed to be beneficially reused and/or disposed of completely within the harbor. Asphalt paving would be delivered from a plant in Inglewood. Stone for slope protection is assumed to be delivered by truck from a quarry in Corona.

Redondo Beach Marina in Basin 3: The marina project element includes the demolition of the existing slips, docks, facilities and reconstruction/redevelopment of the entire floating dock complex and appurtenant facilities within the marina. The marina project element is anticipated to be completed within seven or eight months and accomplished in two distinct sequences: Demolition Work and New Dock Construction.

All construction activities would be completed using a combination of land-based and marine equipment. Demolition of floating docks would be accomplished in sections by towing them to shore and removing them by use of a hydraulic crane. Piles would be removed by crane from a floating barge. All construction debris would be trucked to a processing facility in Gardena.

Concrete piles would be delivered by truck from Fontana and placed from a floating barge using a combination of jetting and an impact hammer. New floating docks would be delivered partially assembled and would be placed by hydraulic crane and outboards. New gangway landings would be constructed by placing piles using a crane on a floating barge and concrete decks would be completed using conventional framework and concrete placement methods.

Horseshoe Pier: The Horseshoe Pier project element includes the demolition of the existing timber pier (which is constructed of timber piles and pile caps, closely spaced timber stringers, and a thin concrete deck slab) and replacement of the timber constructed portion of the pier with new bents consisting of HDPE coated steel pipe piles and concrete pile caps and a thick reinforced concrete deck slab. This project is anticipated to be completed within seven

months. The Horseshoe Pier project element is anticipated to be constructed in two sequences: Building and Partial Pier Demolition, and Pier Construction.

All work is estimated to be completed using typical landside construction equipment. Concrete, wood, metal, and other recyclable materials would be hauled to a processing facility in Gardena. All non-recyclable debris would be disposed of off-site. Creosote timber debris would be hauled to an approved landfill in Rialto.

Materials would be delivered by truck. A 45-ton land-based crane and vibratory hammer would be used to drive the steel pipe piles. Front-end loaders, skid steer loaders, and smaller equipment would be used to ferry equipment and materials to the crew and assist in work tasks.

Pedestrian Bridge: The pedestrian bridge project element includes construction of a new 16-foot wide, 248-foot long fabricated steel movable bridge crossing the entrance to Basin 3. Construction is projected to be completed within six months and accomplished as a single construction sequence. All construction activities are assumed to use a combination of marine and conventional land-based equipment. Pier foundations would be built using a floating derrick barge. Bridge sections are assumed to be erected from the land using a 225-ton truck crane. Construction of smaller bridge abutments and underground machinery vaults would be constructed using smaller excavators and loader equipment. All materials are anticipated to be delivered by truck.

3.2.4.5 Impact Determination

Impact AQ-1: The proposed project would violate an ambient air quality standard or contribute substantially to an existing or projected air quality violation.

Violation of Air Quality Standards – Construction

As described in Section 3.2.2.4, the project site is a current source for air quality emissions. Kincaid's restaurant would not be removed as a part of this project and would remain operational during construction. Emissions from the existing activities, including Kincaid's restaurant are part of the ambient conditions and, therefore, is not discussed independently in this analysis. The remainder of the on-site buildings and activities would cease at the beginning of construction.[19] The proposed project would involve the demolition of approximately 207,402 square feet of existing structures, replacement of the existing Pier Parking Structure, and construction of up to approximately 511,460 square feet of development, which is approximately 304,058 square feet of net new. As discussed previously, the construction would occur over approximately 30 months (approximately 2.5 years).

[19] While existing emissions are being removed and would therefore equate to a minor reduction in regional emissions, the SCAQMD's construction thresholds were designed specifically to allow for increased short-term nature of construction. Therefore, based on SCAQMD methodology emissions estimates for construction are discussed and significance determined without reference to the removed operational emissions.

Construction activities associated with the proposed project would generate pollutant emissions from the following construction activities: (1) demolition, site preparation, grading, and excavation; (2) construction workers traveling to and from project site; (3) delivery and hauling of construction supplies to, and debris from, the project site; (4) fuel combustion by on-site construction equipment; (5) building construction; application of architectural coatings; and paving. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously.

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

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

It is mandatory for all construction projects in the SCAB to comply with SCAQMD Rule 403 for controlling fugitive dust. Incorporating Rule 403 into the proposed project would reduce regional PM_{10} and $PM_{2.5}$ emissions from construction activities. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the proposed project site, covering all trucks hauling soil with a fabric cover and maintaining a freeboard height of 12 inches, and maintaining effective cover over exposed areas. Compliance with Rule 403 and Rule 1113, as a pre-existing regulatory requirements, were accounted for in the construction emissions modeling. Rule 1113 is included as part of the default modeling scenario.

Table 3.2-9 summarizes the modeled peak daily emissions of criteria air pollutants and ozone precursors associated with the proposed project's worst-case construction scenario (utilizing the significance criteria provided in Table 3.2-5). The peak daily emissions generated during each year of the proposed project's construction period are identified. As shown, the maximum daily construction emissions generated by the proposed project's worst-case construction scenario would exceed SCAQMD's daily significance threshold for ROG, NOx and CO, which would be a significant impact. SOx, PM_{10}, and $PM_{2.5}$ would be below the regulatory thresholds and, therefore, construction phase emissions of these pollutants would be less than significant.

Potential health effects of exposure to these criteria pollutants are included in the background information Section 3.2.2.2.3 and Table 3.2-1. The potential for health impacts is more appropriately associated with localized impacts, which are discussed in detail in under Impact AQ-2. The emissions thresholds are designed to allow for development projects to occur but to not result in additional impacts to ambient air quality standards. Projects where impacts are below the regional thresholds would not result in an increase in number of days where ambient air quality standards would be exceeded. For pollutants that exceed the regulatory thresholds, there is the potential that, when combined with all other regional emissions, the increased emissions could result in additional days of standard exceedences. However, because these emissions represent a worst-case scenario and is not a typical daily scenario, and the number of days where this level of emissions would occur is unknown, it is impossible to determine the potential number of days that the proposed project could contribute to air quality standard exceedences.

Table 3.2-9: Proposed Regional Construction Emissions

Construction Year	Estimated Maximum Daily Emissions (lbs/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2017	66.94	718.75	736.14	1.36	64.27	35.36
2018	198.93	173.22	272.38	0.52	17.35	8.54
2019	49.03	61.80	79.76	0.15	4.78	3.05
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	**Yes**	**Yes**	**Yes**	No	No	No

Source: ESA CalEEMod Modeling 2015 (based on Appendix C of this Draft EIR)

Note:

Construction emissions would be slightly different during the summer and winter seasons. Maximum daily emissions of ROG and NO_X would generally be higher during the winter while emissions of CO and SO_2 would generally be higher in the summer. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table.

Violation of Air Quality Standards – Operation

As described in Section 3.2.2.4, the project site is a current source for air quality emissions. As the majority of on-site structures are being removed, the proposed project would result in an increase in building envelope and heating/cooling efficiencies as the new buildings are constructed. There are no upgrades anticipated for Kincaid's restaurant, however emission from the existing restaurant is part of the ambient conditions and is not part of the project emissions analysis. Implementation of the proposed project would result in long-term regional emissions of criteria air pollutants and ozone precursors associated with area sources, such as natural gas consumption, landscaping, applications of architectural coatings (assumed for building upkeep), and consumer products, in addition to operational mobile emissions as taken from the proposed project traffic analysis (Section 3.13 Traffic and Transportation and Appendix L1).

Operations emissions associated with the proposed project were modeled using CalEEMod. Model defaults were adjusted to reflect project-specific data, where available, including the size and type of the proposed land use and project specific trip rates. Detailed modeling

assumptions are included in Appendix C1. Modeled operations emissions are presented in Table 3.2-10.

As shown in Table 3.2-10, the proposed project net emissions would not result in long-term regional emissions of ROG, NOx, CO, SOx, PM_{10} or $PM_{2.5}$. Therefore, the proposed project's net operational emissions would not have the potential to result in or substantially contribute to emissions concentrations that exceed the NAAQS and CAAQS and the impact would not be significant.

Table 3.2-10 Proposed Project Unmitigated Operational Emissions

Emissions Source	Estimated Emissions (lbs/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Existing						
Area Sources[a]	5.75	0.00	0.02	0.00	0.00	0.00
Energy Sources[b]	0.83	7.51	6.31	0.05	0.57	0.57
Mobile Sources	63.64	121.56	537.69	0.84	55.75	16.04
Total Existing Emissions	70.22	129.08	544.03	0.88	56.32	16.62
Proposed Project						
Area Sources[a]	10.50	0.00	0.12	0.00	0.00	0.00
Energy Sources[b]	1.41	12.86	10.80	0.08	0.98	0.98
Mobile Sources	79.00	124.64	588.84	1.13	71.97	20.34
Total Project Emissions	90.91	137.50	599.76	1.21	72.95	21.31
Net Project Increase						
Area Sources[a]	4.75	0.00	0.10	0.00	0.00	0.00
Energy Sources[b]	0.59	5.35	4.49	0.03	0.41	0.41
Mobile Sources	15.35	3.08	51.15	0.29	16.22	4.29
Total Net Project Emissions	20.69	8.42	55.74	0.32	16.63	4.70
Regional Significance Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Significant Impact?	**No**	**No**	**No**	**No**	**No**	**No**

Source: ESA CalEEMod Modeling 2015 (based on Appendix C of this Draft EIR)

Notes:
Area sources include emissions from consumer product use, architectural coating and landscape equipment.
Energy source include natural gas use for heating/cooling as well as electrical consumption.

Mitigation Measures

The following mitigation measures would reduce criteria pollutant emissions associated with project construction:

MM AQ-1: **Fleet Modernization for Construction Equipment**

Prior to issuance of any Grading Permit, the City Engineer and the Chief Building Official shall confirm that the Grading Plan, Building Plans, and specifications stipulate that, the construction contractor shall ensure that all off-road equipment with a horsepower greater than 50 horsepower (HP) be required to have USEPA certified Tier 4 interim engines or engines that are certified to meet or exceed the NOx emission ratings for USEPA Tier 4 engines. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 4 diesel emissions control strategy for a similarly sized engine, as defined by CARB regulations. During construction, the construction contractor shall maintain a list of all operating equipment in use on the project site for verification by the City's Building and Safety Division. The construction equipment list shall state the makes, models, and numbers of construction equipment on-site. Equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations. Construction contractors shall also ensure that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with California Air Resources Board's Rule 2449. These activities shall be verified by the Building and Safety Division during construction.

MM AQ-2: **Use of Low-VOC Coatings and Paints**

Prior to issuance of any Grading Permit, the City Engineer and the Chief Building Official shall confirm that the construction plans and specifications stipulate that all architectural coatings shall meet a volatile organic compound (VOC) content of 50 grams per liter (g/L) or less for interior coating and 100 g/L or less for exterior coatings. Use of low-VOC paints shall be verified by the Building and Safety Division during construction.

Table 3.2-11 summarizes the modeled peak daily emissions associated with the proposed project's worst-case construction scenario after mitigation measures MM AQ-1 and MM AQ-2. Implementation of mitigation measures MM AQ-1 and MM AQ-2 would reduce the impacts of ROG to less than significant; however, NOx and CO would remain significant and unavoidable for construction.

Table 3.2-11: Mitigated Proposed Regional Construction Emissions

Construction Year	Estimated Maximum Daily Emissions (lbs/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2017	-	383.27	697.03	-	-	-
2018	68.23	129.68	-	-	-	-
Regional Significance Threshold	*75*	*100*	*550*			
Significant Impact?	No	**Yes**	**Yes**			

Source: ESA CalEEMod Modeling 2015 (based on Appendix C of this Draft EIR)

Note: Construction emissions would be slightly different during the summer and winter seasons. Maximum daily emissions of ROG and NO_X would generally be higher during the winter while emissions of CO and SO_2 would generally be higher in the summer. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table.

Residual Impacts

After mitigation, construction emissions of NOx and CO would be lower, but would remain significant and unavoidable as shown in Table 3.2-11. No other feasible methods to reduce emissions were identified.

As discussed under the unmitigated conditions above, potential health effects of exposure to these criteria pollutants are included in the background information Section 3.2.2.2.3 and Table 3.2-1. For pollutants that exceed the regulatory thresholds, there is the potential that, when combined with all other regional emissions, the increased emissions could result in additional days of standard exceedences. However, because these emissions represent a worst-case scenario and is not a typical daily scenario, and the number of days where this level of emissions would occur is unknown, it is impossible to determine the potential number of days that the project would contribute to air quality standard exceedences.

Impact AQ-2: The proposed project would not expose sensitive receptors to substantial pollutant concentrations.

Exposure of Sensitive Receptors to Pollutant Concentrations

Separate discussions are provided below analyzing the potential for sensitive receptors to be exposed to CO hotspots and localized air quality impacts from criteria pollutants and TACs from on-site sources during construction and operation of the proposed project.

CO Hotspots

A total of 41 local intersections were analyzed as part of the proposed project's traffic analysis (Section 3.13 Traffic and Transportation and Appendix L1). The existing plus project and cumulative plus project peak hour conditions were evaluated against the screening level threshold of 24,000 vehicles per hour.[20] Peak hourly traffic volumes for each of the study area

[20] For the purpose of conducting a conservative analysis, the more conservative BAAQMD screening threshold for CO hotspots is used for the Project.

intersections are shown in Table 3.2-12. As shown, the maximum hourly traffic is generated at the intersection of Pacific Coast Highway/Catalina Avenue & Herondo Street/Anita Street under all scenarios. The maximum peak traffic at this intersection for the existing plus project scenario is 4,942 and 5,798 vehicles per hour, for the AM and PM peak hours, respectively. Under the cumulative plus project scenario, the maximum hourly traffic is 5,083 and 6,009 4,915 and 5,630 vehicles per hour, for the AM and PM peak hours, respectively. As none of the peak hour traffic at all of the intersections would come close to 24,000 vehicles per hour, CO emissions from these vehicles volumes would be less than significant.

Table 3.2-12: Peak Hourly Traffic Volumes

	Existing Plus Project		Cumulative Plus Project	
Intersection	**AM**	**PM**	**AM**	**PM**
Hermosa Ave & 2nd St	999	1,039	1,020	1,059
Monterey Blvd & 2nd St	423	648	430	662
Valley Dr & 2nd St	529	991	541	1,012
Harbor Dr/Hermosa Ave & Herondo St	1,067	1,383	1,090	1,414
Monterey Blvd & Herondo St	758	1,106	773	1,133
Valley Dr/Francisca Ave & Herondo St	1,059	1,592	1,082	1,629
Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	4,942	5,798	5,083	6,009
Prospect Ave & Anita St	2,810	2,948	2,871	3,022
Harbor Dr & Yacht Club Way	716	1,117	729	1,142
Pacific Coast Hwy & Catalina Ave	3,466	3,858	3,572	4,001
Harbor Dr & Marina Way	728	1,226	743	1,254
Catalina Ave & Gertruda Ave	1,284	1,695	1,311	1,734
Catalina Ave & Francisca Ave	1,233	1,569	1,260	1,606
Catalina Ave & Broadway	1,128	1,415	1,153	1,449
Harbor Dr & Portofino Way/Beryl St	963	1,956	978	1,987
Catalina Ave & Beryl St	1,447	2,121	1,495	2,229
Broadway & Beryl St	463	670	471	680
Francisca Ave & Beryl St	478	888	486	906
Pacific Coast Hwy & Beryl St	3,184	3,931	3,287	4,087
Pacific Avenue & Harbor Dr	166	319	169	324
Catalina Ave & Carnelian St	1,190	1,623	1,212	1,655
Catalina Ave & Diamond St	1,228	1,618	1,252	1,647
Catalina Ave & Emerald St	1,205	1,562	1,228	1,593
Pacific Coast Hwy & Garnet St	2,778	3,121	2,873	3,256
Catalina Ave & Torrance Blvd	1,682	2,513	1,716	2,564
Pacific Coast Hwy & Torrance Blvd	3,554	4,415	3,691	4,631
Helberta Ave/Camino Real & Torrance Blvd	1,681	1,957	1,731	2,028
Prospect Ave & Torrance Blvd	3,432	3,540	3,504	3,615
Catalina Ave & Pearl St	1,213	1,516	1,238	1,549
Camino Real & Pearl St	602	630	615	642

Table 3.2-12: Peak Hourly Traffic Volumes

	Existing Plus Project		Cumulative Plus Project	
Intersection	**AM**	**PM**	**AM**	**PM**
Pacific Coast Hwy & Sapphire St/Francisca Ave	2,523	2,873	2,634	3,047
Esplanade & Knob Hill Ave	431	630	442	658
Catalina Ave & Knob Hill Ave	934	1,149	970	1,197
Pacific Coast Hwy & Knob Hill Ave	2,669	3,153	2,794	3,347
Harbor Dr & Pacific Avenue	420	752	429	767
Pacific Coast Hwy & Palos Verdes Blvd	3,615	4,128	3,791	4,392
Pacific Coast Hwy & 2nd St	3,693	4,120	3,788	4,262
Pacific Coast Hwy & 10th/Aviation	4,177	4,802	4,265	4,902
Pacific Coast Hwy & Pier/14th St	3,188	3,991	3,255	4,073
Pacific Coast Hwy & 16th St	2,989	3,713	3,053	3,789
Pacific Coast Hwy & Prospect Ave	2,417	3,021	2,513	3,131
Maximum	**4,942**	**5,798**	**5,083**	**6,009**
Screening Threshold	24,000	24,000	24,000	24,000
Significant?	No	No	No	No

Source: Fehr & Peers, 2015 (based on Appendix L1 of this Draft EIR)

The Los Angeles County CMP requires that new developments analyze the proposed project's potential impacts on the regional freeway system, the regional roadway network and the regional traffic system. The proposed project's traffic analysis (Section 3.13 Traffic and Transportation and Appendix L1) analyzed the proposed project impacts on these systems. As detailed in the traffic analysis, the proposed project would not conflict with the CMP for arterial roadways, freeways, or transit use.

Given that the proposed project would not exceed the screening level intersection volumes, nor would it conflict with the local CMP, impacts related to CO hotspots would be less than significant.

Localized Construction Air Quality Impacts – Criteria Air Pollutants

As discussed previously, the daily on-site construction emissions generated by the proposed project were evaluated against SCAQMD's LSTs for a five-acre site as a screening-level analysis to determine whether the emissions would cause or contribute to adverse localized air quality impacts.[21] The nearest off-site sensitive receptors are the multi-family residential dwelling units located directly adjacent to the project site on the east. Additionally, there are liveaboards located within the marina to the north. No liveaboards would be located within Redondo Beach Marina/Basin 3 during project construction. Because the mass rate look-up

[21] According to SCAQMD's LST methodology, LSTs are only applicable to the on-site construction emissions that are generated by a project and do not apply to emissions generated off-site such as mobile emissions on roadways from worker, vendor, and haul truck trips.

tables provided by SCAQMD only provides LSTs at receptor distances of 82, 164, 328, 656, and 1,640 feet, the LSTs for a receptor distance of 82 feet are used to evaluate the potential localized air quality impacts associated with the proposed project's peak day construction emissions. Table 3.2-13 identifies the daily-localized on-site emissions that are estimated to occur during the proposed project's worst-case construction scenario prior to the implementation of mitigation measure MM AQ-1. As shown in Table 3.2-13, the daily emissions generated on-site by the proposed project's worst-case construction scenario would exceed the applicable SCAQMD LST for NOx, PM_{10}, and $PM_{2.5}$ for a five-acre site in SRA 3 in 2017 for the combined scenario as well as both the north and south site independently. The emissions for CO for the northern portion and CO, PM_{10}, and $PM_{2.5}$ for the southern portion would not exceed the applicable SCAQMD LSTs. In 2018, PM_{10} for both sites combined exceeds the LST. For 2019 construction years, no emissions would exceed the screening-level LSTs for a five-acre site.

Table 3.2-13: Proposed Project Localized daily Unmitigated Construction Emissions

Construction Year	Estimated Maximum Daily On-Site Emissions			
	NO_X (lbs/day)	CO (lbs/day)	PM_{10}[a] (lbs/day)	$PM_{2.5}$[a] (lbs/day)
Northern Portion Screening Analysis				
2017	623.04	531.15	53.24	29.99
2018	85.07	120.83	7.59	4.19
2019	1.94	2.91	0.38	0.20
Screening Level[b]	197	1,823	15	8
Above Screening Level?	**Yes**	No	**Yes**	**Yes**
Southern Portion Screening Analysis				
2017	411.14	406.75	25.38	17.21
2018	107.50	169.87	11.27	5.47
2019	59.86	76.85	4.40	2.85
Screening Level[b]	197	1,823	15	8
Above Screening Level?	**Yes**	No	**Yes**	**Yes**
Combined Screening Analysis				
2017	1,034.18	937.90	78.62	47.20
2018	192.58	290.70	18.86	9.66
2019	61.80	79.76	4.78	3.05
Screening Level[b]	197	1,823	15	8
Above Screening Level?	**Yes**	No	**Yes**	**Yes**

Source: ESA CalEEMod Modeling, 2015 (based on Appendix C of this Draft EIR)

a. Emissions account for implementation of dust control measures as required by SCAQMD Rule 403—Fugitive Dust.
b. LST values are extrapolated from the SCAQMD LST Threshold Tables for SRA 3 and is based on the construction-related disturbance of five acres per day. The five-acre LSTs are used as a screening level criteria as daily disturbance would be greater than five acres across on both the North plus Basin 3 and South plus Basin 3 development areas.

With implementation of mitigation measure MM AQ-1, emissions from NOx, PM_{10}, and $PM_{2.5}$ would still exceed the SCAQMD's LST screening levels for 2017 although PM10 for 2018 would be below the SCAQMD screening levels. Therefore, a refined analysis is required for emissions in 2017. Mitigated emissions are shown in Table 3.2-14. As the proposed project's worst-case construction emissions would exceed the screening-level LST for NOx, PM_{10}, and $PM_{2.5}$, a more refined dispersion analysis was conducted for the years and pollutants where exceedances occurred. A summary of the assumptions for the refined analysis is provided in the methodology section, Section 3.2.4.1, and the detailed assumptions and modeling output files are included in Appendix C1 and C8.

The results of the refined analysis are also included in Table 3.2-14. The dispersion modeling shows that while emissions exceed the LST screening levels, the emissions from project construction would not result in a localized significant impact. Therefore, localized air quality impacts associated with construction of the proposed project would be less than significant, and no additional mitigation (beyond MM AQ-1 discussed previously) would be required.

Table 3.2-14: Proposed Project Localized daily Mitigated & Refined Construction Emissions

Construction Year	Estimated Maximum Daily On-Site Emissions			
	NO_X (lbs/day)	**CO (lbs/day)**	**PM_{10}[a] (lbs/day)**	**$PM_{2.5}$[a] (lbs/day)**
Northern Portion Screening Analysis				
2017	270.25	486.32	19.40	10.96
2018	53.09	103.71	0.54	0.41
2019	1.85	2.00	0.14	0.13
Screening Level[b]	197	1,823	15	8
Above Screening Level?	**Yes**	No	**Yes**	**Yes**
Southern Portion Screening Analysis				
2017	254.13	379.38	14.19	7.88
2018	76.40	159.33	4.51	1.61
2019	57.54	71.47	2.92	2.42
Screening Level[b]	197	1,823	15	8
Above Screening Level?	**Yes**	No	No	No
Combined Screening Analysis				
2017	524.38	865.70	33.59	18.84
2018	129.49	263.04	5.06	2.02
2019	59.38	73.47	3.06	2.56
Screening Level[b]	197	1,823	15	8
Above Screening Level?	**Yes**	No	**Yes**	**Yes**
	NO_X (ppm)	**CO (ppm)**	**PM_{10}[a] ($\mu g/m^3$)**	**$PM_{2.5}$[a] ($\mu g/m^3$)**
Northern Portion Refined Modeling				
2017	0.11	-	1.41E-03	7.93E-04
Localized Significance Thresholds	0.25	-	10.4	10.4
Significant Impact?	No	-	No	No
Southern Portion Refined Modeling				
2017	0.03	-	-	-
Localized Significance Threshold	0.25	-	10.4	10.4
Significant Impact?	**No**	**-**	**No**	**No**

Table 3.2-14: Proposed Project Localized daily Mitigated & Refined Construction Emissions

Construction Year	Estimated Maximum Daily On-Site Emissions			
	NO_X (lbs/day)	CO (lbs/day)	PM_{10}[a] (lbs/day)	$PM_{2.5}$[a] (lbs/day)
Combined Refined Modeling				
2017	0.14	-	2.98E-03	1.66E-03
Localized Significance Threshold	0.25	-	10.4	10.4
Significant Impact?	**No**	**-**	**No**	**No**

Source: ESA CalEEMod Modeling, 2015 (based on Appendix C of this Draft EIR)

Notes:

a. Emissions account for implementation of dust control measures as required by SCAQMD Rule 403—Fugitive Dust.

b. LST values are extrapolated from the SCAQMD LST Threshold Tables for SRA 3 and is based on the construction-related disturbance of five acres per day. The five-acre LSTs are used as a screening level criteria as daily disturbance would be greater than five acres across on both the North plus Basin 3 and South plus Basin 3 development areas.

Localized Operational Air Quality Impacts – Criteria Air Pollutants

During project operations, the daily amount of localized pollutant emissions generated on-site by the proposed project would not be substantial. The proposed project's on-site operational emissions are shown in Table 3.2-15. As shown, the project's total net operational-related emissions generated on-site would not exceed SCAQMD's screening operational LSTs. Thus, no dispersion modeling is required and localized air quality impacts during project operations would be less than significant.

Table 3.2-15: Proposed Project Localized Operational Emissions

Development Phases	Estimated Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Existing	13.88	34.48	3.49	1.41
Project	19.52	42.37	4.82	2.06
Net Project Increase	5.64	7.89	1.33	0.65
Localized Significance Threshold	197	1,823	4	2
Significant Impact?	No	No	No	No

Source: ESA CalEEMod Modeling, 2015 (based on Appendix C of this Draft EIR)

Localized Construction Air Quality Impacts – TACs

Project construction would result in short-term emissions of diesel PM, which is a TAC. Diesel PM poses a carcinogenic health risk that is measured using an exposure period of 70 years. The exhaust of off-road heavy-duty diesel equipment would emit diesel PM during demolition; site preparation (e.g., clearing); site grading and excavation; paving; installation of utilities, materials transport and handling; building construction; and other miscellaneous activities. SCAQMD has not adopted a methodology for analyzing such impacts and has not recommended that health risk assessments be completed for construction-related emissions of TACs.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., the potential exposure to TACs to be compared to applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), carcinogenic health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period or duration of activities associated with the proposed project.

The construction period for the proposed project would be much less than the 70-year period used for risk determination. Because off-road heavy-duty diesel equipment would be used only for short time periods at each active construction area within the approximately 36-acre project site over the course of the 30-month project construction schedule, project construction is not anticipated to expose any nearby sensitive receptors to substantial emissions of TACs. However, a screening level risk analysis was conducted for the proposed project. As DPM is a subset component of PM_{10}, PM_{10} was used as a proxy for determining the screening level risk. The combined PM_{10} concentration from the refined analysis presented in Table 3.2-14 ($2.98e^{-3}$ $\mu g/m^3$) for construction year 2017 was used as it represents the greatest PM_{10} emissions of all construction years. The concentration was converted to a potential risk assuming a worst case scenario of a child being in the third trimester of development at the beginning of construction and remaining adjacent to the site throughout construction. Using these conservative assumptions, the maximum cancer risk for off-site receptors from construction is 0.90 cases per million people and SCAQMD has a threshold of 10 per million people. The chronic hazard risk (non-cancer health risk) related to DPM for construction would be 0.001 and SCAQMD has a threshold of one. Assumptions and calculations for the screening risk modeling is included in Appendix C2. These screening level risks are very conservative because this emissions level would only occur on peak construction days and would not occur throughout the construction period as the screening analysis assumes. Therefore, actual risks to off-site receptors would be less than what is reported.

Because the screening risk levels for both cancer and non-cancer risks would not exceed the SCAQMD regulatory thresholds for risk, this impact would be less than significant and no mitigation is required.

Localized Operational Air Quality Impacts – TACs

Typical land uses that are sources of acutely and chronically hazardous TACs include industrial manufacturing processes, automotive repair facilities, and dry cleaning facilities using perchloroethylene (which has been banned for use in new dry cleaning facilities). The proposed project would not include any of these potential sources, although minimal emissions may result from the use of consumer products (similar to existing conditions). Additionally, it is not anticipated that emergency back-up generators would be required for the new land uses associated with the proposed project. However, if a generator was implemented for a new land use, it would typically only be used during emergencies and may be turned on periodically for maintenance and inspection purposes. Further, emergency back-up generators are subject to SCAQMD regulatory requirements, which limit the allowable TAC emissions to a level that would not result in a significant impact. As such, the periodic operation of the backup generator at the project site, should it be necessary, would not expose surrounding

sensitive receptors to substantial pollutant or TAC emissions and the impact would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact AQ-3: The proposed project would not create objectionable odors affecting a substantial number of people.

As analyzed in the NOP/IS (Appendix A of this Draft EIR), during construction of the proposed project, exhaust from equipment and activities associated with the application of architectural coatings and other interior and exterior finishes may produce discernible odors typical of most construction sites. Such odors could be a temporary source of nuisance to adjacent uses, but would be temporary, intermittent and not affect a substantial number of people. Additionally it was determined that no on-site sources of emissions would occur as a result of operational activities.

The dredging that would occur for the opening of Seaside Lagoon would extract cobble and sediment that contains organic material. Low levels of odor associated with natural decay of the organic material could occur during the dewatering of sediments. This would be temporary during the dewatering process. Further, it is anticipated that any dewatering would occur in the immediate vicinity of Seaside Lagoon and not occur adjacent to any sensitive receptors.

Additionally, odors dissipate with distance. The closest receptors are the potential residents in the Portofino and Port Royal Marinas located more than 150 feet north of the outer boundary of the Seaside Lagoon area. The next nearest receptors are located just east of Pacific Avenue approximately 550 feet from the boundary of the Seaside Lagoon area. It is likely that dredge materials would be kept close to the shore until removed from site and, therefore, would increase the distance between the potential odor source and the nearest receptors. As odors associated with project construction would be temporary and intermittent in nature, and would be located more than 150 feet from the nearest receptor, this odor source would not have the potential to affect the substantial number of people. Therefore, construction odors from dredging would be considered a less than significant impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

3.2.4.6 Cumulative Impacts

The project site is located within the SCAB, which is considered the cumulative study area for air quality.

Because the SCAB is currently classified as a state nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, cumulative development consisting of the project along with other reasonably foreseeable future projects in the SCAB as a whole could violate an air quality standard or contribute to an existing or projected air quality violation. However, based on SCAQMD's cumulative air quality impact methodology, SCAQMD recommends that if an individual project results in air emissions of criteria pollutants (ROG, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$) that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. As shown in Table 3.2-9 under Impact AQ-1, the proposed project's construction emissions would exceed SCAQMD's daily thresholds during construction for ROG, NOx and CO, resulting in a potentially significant and therefore potentially cumulative impact. Implementation of mitigation measures MM AQ-1 and MM AQ-2 would reduce ROG impacts to a less than significant level; however, NOx and CO would remain above the regulatory thresholds during construction as shown in Table 3.2-11. Therefore, construction emissions for NOx and CO associated with the proposed project would result in a significant and unavoidable cumulative impact to the violation of an air quality standard or contribute to an existing or projected air quality violation.

Operational emissions associated with the proposed project, as shown on Table 3.2-10 under Impact AQ-1, would not exceed the SCAQMD's thresholds of significance for any criteria pollutant. Therefore, operation of the proposed project would not 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). The project's cumulative impacts associated with operational emissions would be less than significant.

As discussed under Impact AQ-2, the proposed project would not expose sensitive receptors to substantial pollutant concentrations during construction or operation. As shown on Table 3.2-12, CO emissions from vehicles would be less than significant under the cumulative plus project scenario and, therefore, the proposed project would not have a cumulative impact relative to CO hotspots. Additionally the proposed project would not result in a significant localized impact from on-site sources and would not have a cumulative impact relative to criteria pollutants and TACs.

As discussed under Impact AQ-3, the proposed project would emit odors during construction from the dewatering of dredge material, which could be a temporary source of nuisance to adjacent uses. However, this would be localized and temporary, and not affect a substantial number of people. The remaining construction odor sources and operational odor impacts were determined in the NOP/IS to be less than significant. The proposed project would not result in a significant impact relative to odors during construction and no cumulative impact is expected to occur.

Cumulative Mitigation Measures

Implementation of mitigation measures MM AQ-1 and MM AQ-2 would reduce ROG impacts to a less than significant level; however, NOx and CO would remain above the

regulatory thresholds during construction. Therefore, construction emissions for NOx and CO would result in significant and unavoidable cumulative impacts.

Cumulative Residual Impacts

With implementation of mitigation measures MM AQ-1 and MM AQ-2, impacts associated with construction emissions would be reduced but significant and unavoidable cumulative impacts for NOx and CO would remain.

3.2.4.7 Summary of Impact Determinations

The following Table 3.2-16 summarizes the impact determinations of the proposed project in addition to adopted growth projections (i.e., potential cumulative impacts) related to air quality, as described in the detailed discussion above.

Table 3.2-16: Summary Matrix of Potential Impacts and Mitigation Measures for Air Quality Associated with the Proposed Project and Cumulative Growth

Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
AQ-1: The proposed project would violate an ambient air quality standard or contribute substantially to an existing or projected air quality violation.	Proposed Project: Significant – construction only	Proposed Project: Mitigation measures MM AQ-1 and MM AQ-2	Proposed Project: Significant and unavoidable – construction only
	Cumulative: Significant (cumulatively considerable contribution) – construction only	Cumulative: Mitigation measures MM AQ-1 and MM AQ-2	Cumulative: Significant and unavoidable (cumulatively considerable contribution) – construction only
AQ-2: The proposed project would not expose sensitive receptors to substantial pollutant concentrations.	Proposed Project: Less than significant	Proposed Project: No mitigation is required	Proposed Project: Less than significant
	Cumulative: Less than significant (no cumulatively considerable contribution)	Cumulative: No mitigation is required	Cumulative: Less than significant (not cumulatively considerable)
AQ-3: The proposed project would not create objectionable odors affecting a substantial number of people.	Proposed Project: Less than significant	Proposed Project: No mitigation is required	Proposed Project: Less than significant
	Cumulative: Less than significant (no cumulatively considerable contribution)	Cumulative: No mitigation is required	Cumulative: Less than significant (not cumulatively considerable)

Cumulative: The proposed project would result in a cumulatively considerable net increase of criteria pollutants 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: Less than significant (no cumulatively considerable contribution)/significant (cumulatively considerable contribution) – construction only	Cumulative: Mitigation measures MM AQ-1 and MM AQ-2	Cumulative: Significant and unavoidable (cumulatively considerable contribution) – construction only

3.2.4.8 Summary of Mitigation Measures

Implementation of the following mitigation measures would be required to reduce significant air quality impacts associated with project construction:

MM AQ-1: **Fleet Modernization for Construction Equipment**

Prior to issuance of any Grading Permit, the City Engineer and the Chief Building Official shall confirm that the Grading Plan, Building Plans, and specifications stipulate that, the construction contractor shall ensure that all off-road equipment with a horsepower greater than 50 horsepower (HP) be required to have USEPA certified Tier 4 interim engines or engines that are certified to meet or exceed the NOx emission ratings for USEPA Tier 4 engines. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 4 diesel emissions control strategy for a similarly sized engine, as defined by CARB regulations. During construction, the construction contractor shall maintain a list of all operating equipment in use on the project site for verification by the City's Building and Safety Division. The construction equipment list shall state the makes, models, and numbers of construction equipment on-site. Equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations. Construction contractors shall also ensure that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with California Air Resources Board's Rule 2449. These activities shall be verified by the Building and Safety Division during construction.

MM AQ-2: **Use of Low-VOC Coatings and Paints**

Prior to issuance of any Grading Permit, the City Engineer and the Chief Building Official shall confirm that the construction plans and specifications stipulate that all architectural coatings shall meet a volatile organic compound (VOC) content of 50 grams per liter (g/L) or less for interior coating and 100 g/L or less for exterior coatings. Use of low-VOC paints shall be verified by the Building and Safety Division during construction.

3.2.5 Significant Unavoidable Impacts

The proposed project would implement mitigation to reduce NOx and CO emissions from construction activities. Even with the mitigation, construction of the proposed project would exceed SCAQMD's daily significance threshold for NOx and CO. Therefore, construction emissions for the proposed project would result in a significant and unavoidable impact to air quality.