4.2 AIR QUALITY

This section of the EIR analyzes the potential environmental effects on air quality from implementation of the proposed project. Data used to prepare this section were taken from various sources, including the Beach and Edinger Corridors Specific Plan (BECSP) Environmental Impact Report, the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook, and the 2007 Air Quality Management Plan (AQMP), as amended. In addition, Appendix A (Air Quality Data) contains the air quality datasheet that was used to calculate data for this section. Full reference-list entries for all cited materials are provided in Section 4.2.5 (References).

4.2.1 Environmental Setting

The City of Huntington Beach is located within the South Coast Air Basin (Basin), named so because its geographical formation is that of a basin, with the surrounding mountains trapping the air and its pollutants in the valleys or basins below. This area includes all of Orange County and the nondesert portions of Los Angeles, San Bernardino, and Riverside Counties. The regional climate within the Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The air quality within the Basin is influenced by a wide range of emissions sources such as dense population centers, heavy vehicular traffic and industry, as well as meteorology.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). Coastal areas have a more pronounced oceanic influence, and show less variability in annual minimum and maximum temperatures than inland areas. The City of Huntington Beach is located in northern coastal Orange County, which is in the southern portion of the Basin. The annual average temperature in the City ranges from approximately 47.0°F in December and January to 73.5°F in August (WRCC n.d.).

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin, along the coastal mountain ranges. Average rainfall in the City ranges from approximately 0.01 inch in July to 2.42 inches in February, with an average annual total of 11.20 inches (WRCC n.d.).

The Basin experiences a persistent temperature inversion, which is characterized by increasing temperature with increasing altitude. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer.

The vertical dispersion of air contaminants in the Basin is also affected by wind conditions. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized

areas in the Basin are transported predominantly on-shore into Riverside and San Bernardino Counties. The Santa Ana winds, which are strong and dry north or northeasterly winds that occur during the fall and winter months, also disperse air contaminants in the Basin. The Santa Ana conditions tend to last for several days at a time.

Air Quality Background

Air pollutant emissions within the Basin are generated by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources are usually subject to a permit to operate from the SCAQMD, occur at specific identified locations, and are usually associated with manufacturing and industry. Examples of point sources are boilers or combustion equipment that produce electricity or generate heat, such as heating, ventilation, and air conditioning (HVAC) units. Area sources are widely distributed and produce many small emissions, and they do not require permits to operate from the SCAQMD. Examples of area sources include residential and commercial water heaters, painting operations, portable generators, lawn mowers, agricultural fields, landfills, and consumer products, such as barbeque lighter fluid and hairspray, the areawide use of which contributes to regional air pollution. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources are those that are legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, racecars, and construction vehicles. Mobile sources account for the majority of the air pollutant emissions within the Basin. Air pollutants can also be generated by the natural environment, such as when fine dust particles are pulled off the ground surface and suspended in the air during high winds.

Both federal and state governments have established ambient air quality standards for outdoor concentrations of specific pollutants, referred to as "criteria pollutants," in order to protect public health. The national and state ambient air quality standards have been set at concentration levels to protect the most sensitive persons from illness or discomfort with a margin of safety. Applicable ambient air quality standards are identified later in this section under Thresholds of Significance. The SCAQMD is responsible for bringing air quality within the Basin into attainment with the national and state ambient air quality standards.

The criteria pollutants for which federal and state standards have been promulgated and that are most relevant to air quality planning and regulation in the Basin are ozone, carbon monoxide, fine suspended particulate matter, sulfur dioxide, and lead. In addition, toxic air contaminants are of concern in the Basin. Each of these is briefly described below.

- **Ozone (O_3)** is a gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- **Carbon Monoxide (CO)** is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the

primary source of CO in the Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

- **Respirable Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$)** consists of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen and windstorms, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- **Nitrogen dioxide (NO_2)** is a nitrogen oxide compound that is produced by the combustion of fossil fuels, such as in internal combustion engines (both gasoline and diesel powered), as well as point sources, especially power plants. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitors.
- **Sulfur dioxide (SO_2)** is a colorless, extremely irritating gas or liquid. It 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 sulfur dioxide oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X).
- **Lead (Pb)** occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the Basin. The use of leaded gasoline is no longer permitted for on road motor vehicles, so the majority of such combustion emissions are associated with off-road vehicles such as racecars. Other sources of lead include the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and the use of secondary lead smelters.
- **Toxic Air Contaminants (TACs)** refer to a diverse group of air pollutants that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. They include both organic and inorganic chemical substances that may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. Toxic air contaminants are different than "criteria" pollutants in that ambient air quality standards have not been established for them, largely because there are hundreds of air toxics and their effects on health tend to be local rather than regional. TACs primarily are concentrated within 0.25 mile of the emissions source, and accepted practice is to analyze TACs when receptors are located within this 0.25-mile radius.

State standards have been promulgated for other criteria air pollutants, including SO_4, hydrogen sulfide, lead, and visibility-reducing particles. California also recognizes vinyl chloride as a TAC with an undetermined threshold level of exposure for adverse health effects. Vinyl chloride and hydrogen sulfide emissions are generally generated from mining, milling, refining, smelting, landfills, sewer plants, cement manufacturing, or the manufacturing or decomposition of organic matter. California standards for sulfate- and visibility-reducing particles are not exceeded anywhere in the Basin. Lead is typically only emitted during demolition of structures expected to include lead-based paint and materials.

Health Effects of Air Pollutants

Ozone

Individuals exercising outdoors, children, and people with preexisting lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible subgroups for ozone effects. Short-term exposures (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in high ozone communities.

Ozone exposure under exercising conditions is known to increase the severity of the above-mentioned observed responses. Animal studies suggest that exposure to a combination of pollutants that include ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Carbon Monoxide

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of worsening oxygen supply to the heart.

Inhaled CO has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include patients with diseases involving heart and blood vessels, fetuses, and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes.

Reduction in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO, resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels. These include pre-term births and heart abnormalities.

Particulate Matter

A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks, and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life span, and an increased mortality from lung cancer.

Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long-term exposure to particulate matter.

The elderly, people with pre-existing respiratory or cardiovascular disease and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.

Nitrogen Dioxide

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposures to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these subgroups.

In animals, exposure to levels of NO_2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO_2.

Sulfur Dioxide

A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to airflow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2.

Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or if one pollutant alone is the predominant factor.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Lead poisoning can cause anemia, lethargy, seizures, and death, although it appears that there are no direct effects of lead on the respiratory system. lead can be stored in the bone from early age environmental exposure, and elevated lead levels in the blood can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of lead because of previous environmental lead exposure of their mothers.

Toxic Air Contaminant Emissions

TACs are another class of air pollutants known to be hazardous to health even in small quantities. More specifically, TACs are airborne substances that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. TACs may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. The U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (California ARB) studies have shown that particulate matter from diesel engines (DPM) and five other TACs (i.e., acrolein, acetaldehyde, formaldehyde, benzene, and 1.3-butadiene) emitted from the state's motor vehicle fleet are responsible for much of the overall cancer risk and other chronic or acute adverse health effects from TAC in California.[2,3]

Odors

The science of odor as a health concern is still new. The adverse effects of odors on residential areas and other sensitive receptors, such as hospitals, day-care centers, and schools warrant the closest scrutiny; but consideration should also be given to other land use types where people congregate, such as recreational facilities, worksites, and commercial areas. Although the relative distance to a particular receptor(s) ultimately determines if a project has significant odor impacts, a number of operational and environmental factors influence the extent to which those receptors are affected by odors.

The nature of operational activities and the types of odiferous compounds they produce (e.g., odor emissions from a wastewater treatment process, rendering plant, or coffee roaster) can affect the number of complaints differently depending on the type of odor produced. For example, odiferous compounds generated by a wastewater treatment plant or landfill are more likely to be perceived more offensive to receptors than those generated by a coffee roaster or bakery.

Meteorological conditions, such as those described above, affect the dispersion of odor emissions, which determines the exposure concentration of odiferous compounds at receptors. The predominant wind direction in an area influences which receptors are exposed to the odiferous compounds generated by a nearby source. Receptors located upwind from a large odor source may not be affected due the produced odiferous compounds being dispersed away from the receptors. Wind speed also influences the degree to which odor emissions are dispersed away from any area.

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[2] California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective* (April 2005).
[3] California Department of Transportation, *Estimating Mobile Source Air Toxics Emissions: A Step-by-Step Project Analysis Methodology* (December 2006).

Existing Regional Air Quality

Measurements of ambient concentrations of the criteria pollutants are used by the USEPA and California ARB to assess and classify the air quality of each air basin, county, or, in some cases, a specific urbanized area. The classification is determined by comparing actual monitoring data with national, federal, and state standards. If a pollutant concentration in an area is lower than the standard, the area is classified as being in "attainment" in that area. If the pollutant exceeds the standard, the area is classified as a "nonattainment" area. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

The entire Basin is designated as a national-level nonattainment area for CO, PM_{10}, and $PM_{2.5}$. It is also a national-level extreme nonattainment area for O_3, meaning that national ambient air quality standards are not expected to be met for more than 17 years. The Basin is also a state-level nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. As of July 2007, it is in attainment of both the national and state ambient air quality standards for SO_2, lead, and NO_2, which is a pure form of NO_X, and is in state attainment for CO.

The SCAQMD divides the Basin into thirty-eight source receptor areas (SRAs) in which thirty-two monitoring stations operate to monitor the various concentrations of air pollutants in the region. The City of Huntington Beach is located within SRA 18, which covers the Northern Coastal Orange County area. The Costa Mesa-Mesa Verde Drive monitoring station is the nearest monitoring station to the project site, and is approximately seven miles to the east of the proposed project site. This station currently monitors emission levels of O_3, CO, NO_2, and SO_2 but does not monitor the pollutant levels of PM_{10} and $PM_{2.5}$. The Anaheim-Pampas Lane monitoring station in SRA 17 was utilized for PM_{10} and $PM_{2.5}$ levels located approximately 10 miles northeast of the project site. The SCAQMD has not verified air quality data collected past 2008 as of the preparation of this EIR; therefore, data from 2006 to 2008 are presented below.

According to the air quality data shown in Table 4.2-1 (Summary of Ambient Air Quality in the Project Vicinity), the national and state 1-hour O_3 standard has not been exceeded over between 2006 and 2008 in SRA 18. The national 8-hour O_3 standard was exceeded on three days between 2006 and 2008. No national or state standards for CO, NO_2, or SO_2 have been exceeded during that time within SRA 18. State PM_{10} levels were found to be above the threshold fifteen times and federal levels for $PM_{2.5}$ exceeded thresholds levels established by the USEPA approximately thirty-five times between 2006 and 2008.

Local Air Quality

Motor vehicles are the primary source of pollutants in the project site vicinity. Local emissions sources also include stationary activities, such as space and water heating, landscape maintenance from leaf blowers and lawn mowers, consumer products, and mobile sources. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed national and/or state standards for CO are termed "CO hotspots." Section 9.l4 of the SCAQMD's CEQA Air Quality Handbook identifies CO as a localized problem requiring additional analysis when a project is likely to subject sensitive receptors to CO hotspots. The SCAQMD defines

Table 4.2-1 Summary of Ambient Air Quality in the Project Vicinity						
	Number of Days Standards Were Exceeded and Maximum Ambient Concentrations During Such Violations					
Pollutant/Standard	*2006*		*2007*		*2008*	
Ozone						
State 1-Hour ≥ 0.09 ppm	0	days	0	days	0	days
Max. 1-Hour Conc. (ppm)	0.07	ppm	0.082	ppm	0.094	ppm
State 8-Hour > 0.070 ppm	0	days	2	days	15	days
Federal 8-Hour > 0.075 ppm[a]	0	days	0	days	3	days
Max. 8-Hour Conc. (ppm)	0.064	ppm	0.072	ppm	0.079	ppm
Carbon Monoxide						
State 1-Hour > 20.0 ppm	0	days	0	days	0	days
Federal 1-Hour ≥ 35.0 ppm	0	days	0	days	0	days
Max 1-Hour Conc. (ppm)	4	ppm	5	ppm	3	ppm
State 8-Hour > 9.0 ppm	0	days	0	days	0	days
Federal 8-Hour ≥ 9. ppm	0	days	0	days	0	days
Max. 8-Hour Conc. (ppm)	3	ppm	3.1	ppm	2	ppm
Nitrogen Dioxide						
State 1-Hour ≥ 0.18 ppm	0	days	0	days	0	days
Federal 1-Hour ≥ 0.10 ppm	0	days	0	days	0	days
Max. 1-Hour Conc. (ppm)	0.05	ppm	0.07	ppm	0.08	ppm
State Annual ≥ 0.030 ppm	0	days	0	days	0	days
Federal Annual ≥ 0.053 ppm	0	days	0	days	0	days
Max. Annual Conc. (ppm)	0.0145	ppm	0.01320	ppm	0.0132	ppm
Sulfur Dioxide						
State 1-hour ≥ 0.25 ppm	0	days	0	days	0	days
Max 1-Hour Conc. (ppm)	0.01	ppm	0.01	ppm	0.01	ppm
State 24-hour ≥ 0.04 ppm	0	days	0	days	0	days
Federal 24-Hour > 0.014 ppm[b]	0	days	0	days	0	days
Max 24-Hour Conc. (ppm)	0.004	ppm	0.0010	ppm	0.0011	ppm
Federal Annual 0.03 ppm	0	days	0	days	0	days
Annual Average	0.0013	ppm	0.0010	ppm	.0011	ppm
Inhalable Particulates (PM_{10})						
State 24-Hour > 50 µg/m^3	7	days	5	days	3	days
Federal 24-Hour > 150 µg/m^3	0	days	0	days	0	days
Max. 24-Hour Conc. (µg/m^3)	104	µg/m^3	75	µg/m^3	61	µg/m^3
State Annual > 20 µg/m^3	*	days	*	days	*	days
Max. Annual Conc. (µg/m^3)	33.4	µg/m^3	31.0	µg/m^3	28.6	µg/m^3

Table 4.2-1 Summary of Ambient Air Quality in the Project Vicinity

Pollutant/Standard	Number of Days Standards Were Exceeded and Maximum Ambient Concentrations During Such Violations					
	2006		2007		2008	
Inhalable Particulates ($PM_{2.5}$)						
Federal 24-Hour > 35 µg/m³	8	days	14	days	13	days
Max. 24-Hour Conc. (µg/m³)	56.2	µg/m³	79.4	µg/m³	67.9	µg/m³
State Annual > 12 µg/m³	*	days	*	days	*	days
Federal Annual > 15 µg/m³	*	days	*	days	*	days
Max. Annual. (µg/m³)	14.1	µg/m³	14.5	µg/m³	13.7	µg/m³

SOURCE: South Coast Air Quality Management District, SRA18, PM_{10}, and $PM_{2.5}$ data from SRA17, http://www.aqmd.gov/smog/historicaldata.htm, August 2010

ppm = parts per million; µg/m³ = micrograms per cubic meter

* Data not available

a. The federal 1-hour ozone standard of 12 ppm was revoked on June 15, 2005, and replaced with the federal 8-hour ozone standard.

b. On June 2, 2010, EPA established a new 1-hour sulfur dioxide standard of 75 ppm. Monitoring ambient sulfur dioxide concentrations for compliance with this new standard needs to be in place by January 2013.

typical sensitive receptors as residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Nearby sensitive receptors to the proposed project would be the residences surrounding the project area.

The SCAQMD recommends the use of CALINE4, a dispersion model for predicting CO concentrations, as the preferred method of estimating pollutant concentrations at sensitive receptors near congested roadways and intersections. For each intersection analyzed, CALINE4 adds roadway-specific CO emissions calculated from peak hour turning volumes to ambient CO air concentrations. In general, the SCAQMD recommends the evaluation of CO concentrations at any intersections that would perform at a level of service (LOS) D or worse. Consistent with this methodology, maximum existing CO concentrations were calculated for fourteen study intersections for the BECSP EIR. Three of those intersections would potentially be impacted by the proposed project traffic, the intersection of Beach Boulevard and Warner Avenue, Beach Boulevard and Slater Avenue and the intersection of Newland Street and Warner Avenue. The results of these calculations for the existing conditions are presented in Table 4.2-2 (Existing Localized Carbon Monoxide Concentrations) for representative receptor locations at roadway edge, 25 feet, and 50 feet from each roadway. These distances were selected because they represent locations where a person may be living or working for 1 to 8 hours at a time. The National 1-hour standard is 35.0 parts per million (ppm), and the state 1-hour standard is 20.0 ppm. The 8-hour national and state standards are both 9.0 ppm.

As shown in Table 4.2-2, under worst-case conditions, existing CO concentrations in the project vicinity do not exceed national or state 1-hour and 8-hour ambient air quality standards. Therefore, CO hotspots do not currently exist near these intersections.

Table 4.2-2 Existing Localized Carbon Monoxide Concentrations

Intersection	CO Concentrations in Parts per Million[a,b]					
	Roadway Edge		25 Feet		50 Feet	
	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
Beach Boulevard and Warner Avenue	6.9	4.4	6.3	4.0	6.1	3.9
Newland Street and Warner Avenue	6.2	4.0	5.8	3.7	5.7	3.6
Beach Boulevard and Slater Avenue	6.5	4.1	6.0	3.8	5.8	3.7

SOURCE: PBS&J, 2009. The Beach and Edinger Corridors Specific Plan EIR.

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

4.2.2 Regulatory Framework

Refer to Section 4.2.2 (Regulatory Framework) of the BECSP Program EIR, for applicable federal, state, and local regulations that would apply to the proposed project. No new regulations have been implemented since the certification of the Program EIR.

The BECSP Development Code, which includes development standards, development regulations, and guidelines, governs all development actions with the BECSP area, including the proposed project site. The proposed project would be subject to development standards specific to the proposed project site's BECSP designations of Neighborhood Centers, included as BECSP Section 1.4.1-1 (Neighborhood Centers).

General Plan and BECSP Consistency Analysis

The proposed project would consist of a mixed-use residential and commercial development on a 4-acre site at the southwest corner of Beach Boulevard and Warner Avenue. The proposed project site is located within the Neighborhood Boulevard Segment of the BECSP, and is identified as a Neighborhood Center. Within the Neighborhood Center designation, existing shopping centers are encouraged to intensify development with a mixture of complimentary uses that are less exclusively auto-oriented. Proposed development would adhere to the design guidelines and the requirements of the BECSP for the Neighborhood Center districts. One of the primary objectives of the proposed project is to support the regional mobility system by encouraging development within the existing corridor's transportation and activity centers that will reduce vehicular trips and infrastructure costs, and encourages the expansion and use of public transportation services. Future residents of the proposed project would be encouraged to use alternative modes of transportation, including mass transit, walking, and biking to reduce the amount of vehicle emissions attributed to shoppers and workers. Further, as a mixed-use project, future on-site residents would be able to purchase items from the retail portion of the project, thereby reducing vehicle trips that would otherwise occur. Further, incorporation of the mitigation measures, as well as compliance with Title 24 as described in Section 4.14 (Utilities/Service Systems), would assist in the reduction of nonvehicular emissions. As such, the proposed project would be considered consistent with the goals, objectives, and polices of the General Plan.

4.2.3 Project Impacts and Mitigation

Analytic Method

The analysis in this section focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed project. Air pollutant emissions associated with the proposed project would result from construction activities, operation of uses allowed under the proposed project, and project-related traffic volumes. Air quality impacts are also estimated in relationship to the nearest schools, hospitals, convalescent homes, and sensitive uses. The health of people at these properties may be adversely impacted if air emissions exceed a level deemed significant by federal and state agencies. The net increase in project site emissions generated by these activities and other secondary sources have been quantitatively estimated and compared to thresholds of significance established by the SCAQMD.

Construction Emissions

Construction emissions are calculated by estimating the types and number of pieces of equipment that would be used to grade, excavate, and surcharge the project site, and construct the uses proposed under the project. Construction emissions are analyzed according to the thresholds established by the SCAQMD. Construction activities associated with the proposed mixed-use project would temporarily increase diesel emissions, and would generate particulate matter (dust). Construction equipment within the project site that would generate VOC and NO_X pollutants could include graders, dump trucks, and bulldozers. Some of this equipment would be used during grading activities as well as when the structure is developed on the project site. It is assumed that all construction equipment used would be diesel-powered.

Operational Emissions

Operational emissions associated with the proposed project are estimated using the URBEMIS 2007 computer model developed for California ARB and information provided in the traffic study prepared by Austin-Foust Associates for the proposed project. Operational emissions would be comprised of mobile source emissions and area source emissions. Mobile source emissions would be generated by any increase in motor vehicle trips to and from new uses within the proposed project area. Area source emissions would be generated by natural gas consumption for space and water heating, and landscape maintenance equipment. To determine if an air quality impact would occur, the increase in emissions was compared with the SCAQMD's thresholds.

Localized CO Concentrations for Operation

The SCAQMD recommends the use of CALINE4, a dispersion model for predicting CO concentrations, as the preferred method of estimating pollutant concentrations at sensitive receptors near congested roadways and intersections. For each intersection analyzed, CALINE4 adds roadway-specific CO emissions calculated from peak-hour turning volumes to the existing ambient CO air concentrations. This EIR utilizes the analysis performed for the BECSP EIR in which CO concentrations were calculated based on a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District and allowed by the SCAQMD and traffic volumes provided in the traffic report for

the BECSP EIR. The simplified model is intended as a screening analysis in order to identify a potential CO hotspot. This methodology assumes worst-case conditions and provides a screening of maximum, worst-case CO concentrations. For the BECSP EIR analysis, CO concentrations from roadway intersections determined to operate at LOS D, E, or F at build-out (2030 conditions) of the BECSP that would potentially be impacted by the proposed project's related traffic were analyzed. All other roadway intersections are expected to generate lower CO concentrations that would not exceed the federal or state 1-hour and 8-hour standards and, as such, were not modeled and are not presented in this EIR.

Localized Significance Thresholds for Construction

In addition to the daily air emissions thresholds established by SCAQMD, potential localized impacts for certain criteria pollutants with regard to project-related emissions are calculated using a separate method. Localized Significance Thresholds (LSTs) are only applicable to the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs 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 standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. LSTs are developed based upon the size or total area of the emissions source, the ambient air quality in each source receptor area (SRA) in which the emission source is located, and the distance to the sensitive receptor. LSTs for NO_2 and CO are derived by adding the incremental emission impacts from the project activity to the peak background NO_2 and CO concentrations and comparing the total concentration to the most stringent ambient air quality standards. Background criteria pollutant concentrations are represented by the highest measured pollutant concentration in the last three years at the air quality monitoring station nearest to the proposed project site. Construction $PM_{2.5}$ and PM_{10} LSTs are developed using a dispersion model to back calculate the emissions necessary to exceed a concentration equivalent to 50 micrograms per cubic meter (mg/m^3) averaged over 5 hours, which is the control requirement in SCAQMD Rule 403. The equivalent concentration for developing $PM_{2.5}$ and PM_{10} LSTs is 10.4 mg/m^3, which is a 24-hour average. For project sites larger than 5 acres, the SCAQMD recommends that dispersion modeling be performed for CO, NO_X, PM_{10}, and $PM_{2.5}$. Currently, dispersion modeling is done on a voluntary basis to determine whether or not a project may generate significant adverse localized air quality impacts.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2010 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

As the agency principally responsible for comprehensive air pollution control in the Basin, the SCAQMD recommends that projects should be evaluated in terms of air pollution control thresholds established by the SCAQMD and published in the CEQA Air Quality Handbook. These thresholds were developed by the SCAQMD to provide quantifiable levels to which all projects can be compared. The City utilizes the SCAQMD's thresholds that are in effect at the time that development is proposed in order to assess the significance of quantifiable impacts. The following quantifiable thresholds are currently recommended by the SCAQMD. The City has identified these SCAQMD thresholds as appropriate for the determination of the significance of impacts.

Construction Emissions

The SCAQMD currently recommends that projects with construction-related emissions that exceed any of the following emissions thresholds should be considered significant. The SCAQMD also recommends that any construction-related emissions from individual development projects that exceed these thresholds be considered cumulatively considerable. These thresholds apply to individual development projects only; they do not apply to the emissions collectively generated by related projects:

- 550 pounds per day of CO
- 75 pounds per day of VOC
- 100 pounds per day of NO_X
- 150 pounds per day of SO_X
- 150 pounds per day of PM_{10}
- 55 pounds per day of $PM_{2.5}$

Operational Emissions

The SCAQMD currently recommends that projects with operational emissions that exceed any of the following emissions thresholds should be considered significant. The SCAQMD also recommends that any operational emissions from individual projects that exceed these thresholds be considered cumulatively considerable. These thresholds apply to individual development projects only; they do not apply to the emissions collectively generated by related projects:

- 550 pounds per day of CO
- 55 pounds per day of VOC
- 55 pounds per day of NO_X
- 150 pounds per day of SO_X
- 150 pounds per day of PM_{10}
- 55 pound per day of $PM_{2.5}$

In order to assess cumulative impacts, the SCAQMD recommends that projects be evaluated to determine whether they would be consistent with 2007 AQMP performance standards and project-specific emissions thresholds. In the case of the proposed project, air pollutant emissions would be considered to be cumulatively considerable if the new sources of emissions exceed SCAQMD project-specific emissions thresholds.

Localized Significance Thresholds

LSTs were developed in response to the SCAQMD Governing Board's Environmental Justice Enhancement Initiative (I-4). LSTs are only applicable for construction emissions of CO, NO_2, PM_{10}, and $PM_{2.5}$. LSTs do not apply to emissions during operation of the Project.

Emissions for the localized construction air quality analysis will be compiled using LST methodology promulgated by the SCAQMD. Impacts from construction activities on localized on-site and off-site sensitive receptors were calculated using AERMOD. For CO and NO_X, significance is determined by converting the output from AERMOD to ppm and adding the Project incremental contribution in ppm to the background level. A project would have a significant impact if the project increment plus the background is greater than the most restrictive state or federal ambient air quality standard. Because the ambient emissions exceed the SCAQMD thresholds for particulate matter (PM_{10} and $PM_{2.5}$), significance is determined by level of increase. If anticipated construction activities would be greater than 10.4 $\mu g/m^3$ (micrograms per cubic meter of air) based on a 24-hour average, then the construction activities are considered significant. Since construction is anticipated to last more than a year, the annual change in emissions must be less than 1 $\mu g/m^3$ as determined from annual emissions extrapolated from the worst-case emissions.

If the Proposed Project would result in exceedance of the LSTs for any air pollutant as identified below in Table 4.2-3 (Localized Significance Thresholds), this would constitute a significant impact.

Table 4.2-3 Localized Significance Thresholds

Air Pollutant	*Thresholds of Significance*
CO 1-Hour	20.0 ppm
CO 8-Hour	9.0 ppm
NO_2 1-Hour	0.10 ppm
NO_2 Annual	0.03 ppm
PM_{10} 24-Hour	10.4 $\mu g/m^3$
PM_{10} Annual	1 $\mu g/m^3$
$PM_{2.5}$ 24-Hour	10.4 $\mu g/m^3$
$PM_{2.5}$ Annual	1 $\mu g/m^3$

SOURCE: PBS&J, 2010; SCAQMD, 2008 Air Quality Data Table, 2010.

Impacts and Mitigation Measures

Threshold	Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?

Impact 4.2-1 **Implementation of the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. This would be a *less than significant* impact.**

The 2007 AQMP was prepared to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, and to attain clean air within the region. Projects that are considered to be consistent with the AQMP would not interfere with attainment, because this growth is included in the projections used to formulate the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

Projects that are consistent with the projections of population forecasts identified in the Growth Management chapter of SCAG's Regional Comprehensive Plan and Guide (RCPG) are considered consistent with the AQMP growth projections. This is because the Growth Management chapter of the RCPG forms the basis of the land use and transportation control portions of the 2007 AQMP. The BECSP EIR identified that full build-out of the BECSP would result in a total population increase of 12,015 residents, which was within the SCAG population projection for 2030 increase of approximately 22,795 residents. Implementation of the proposed project would result in the construction of up to 279 dwelling units and 35,600 sf of commercial and retail uses. Development of 279 dwelling units would result in an estimated population increase of 745 persons, or approximately six percent of the anticipated population evaluated in the BECSP EIR.[4] As implementation of the proposed project would result in increased population that is within that projected for the BECSP, the proposed residential development would not be expected to result in an exceedance of SCAG population projections. Therefore, as the AQMP is based on SCAG growth projections, the proposed project would be consistent with the 2007 AQMP population growth projections.

Based on the consistency of the approved BECSP with current SCAG projections and AQMP forecasts, and as discussed above, the fact that the proposed project would represent approximately six percent of the total population increase anticipated in the BECSP EIR, the proposed project would not impair implementation of the AQMP, and this impact would be ***less than significant***. No mitigation measures are required.

[4] Based on the existing average household size of 2.67 persons for the City of Huntington Beach. Although this is approximately 7 units greater than what was contemplated for the project site in the Initial Study for the BECSP, it is well within the approved MAND of the BECSP.

Threshold	Would the proposed project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Impact 4.2-2 **Construction activities associated with the proposed project could violate an air quality standard or contribute substantially to an existing or projected air quality violation. This would be a potentially significant impact. Implementation of mitigation measures BECSP MM4.2-1 though BECSP MM4.2-14 would reduce this impact, but not below the SCAQMD thresholds. Therefore, this impact is *significant and unavoidable*.**

Construction activities would occur in two phases with four discrete activities occurring within each phase; demolition, grading and excavation, building construction and architectural coating. Anticipated to start in summer 2012, Phase 1 would involve the demolition of 26,730 sf of existing buildings along the southeast corner of Warner Avenue and Ash Street, followed by grading and excavation, construction of a 89,044-square-foot mixed-use building and parking structure, and architectural coating of the new mixed-use building. Phase 2 would involve demolition of approximately 72,543 sf of existing buildings along the northwest corner of Cypress Avenue and Beach Boulevard, followed by grading and excavation. Excavation would include the export of approximately 4,000 cubic yards of soil during the construction of the below grade parking associated with Phase 2. Building construction would consist of a 247,421 sf mixed-use building and a three level parking structure, with retail along Beach Boulevard and town-house style residential located along Cypress Avenue and Elm Street. Residential uses would also be located on levels 3 through 6 of the building, above the commercial uses and the parking structure. Upon completion of the building construction, architectural coating would be applied, with construction activities anticipated to be completed by summer 2017.

Because of the construction time frame and the normal day-to-day variability in construction activities and the on-site mobility of certain construction vehicles, it is difficult to precisely quantify the daily emissions associated with each phase of the proposed construction activities. Nonetheless, Table 4.2-4 (Estimated Daily Peak Construction Emissions in Pounds per Day) identifies daily emissions that are estimated to occur on peak construction days. These calculations assume that mitigation measures BECSP MM4.2-1 through BECSP MM4.2-14 have been implemented to reduce construction related emissions. Therefore, the daily emissions presented in Table 4.2-4 account for the maximum daily emissions of potential construction activities that would occur during any given construction stage.

As shown, construction-related daily emissions would exceed SCAQMD significance thresholds in the year 2015 for PM_{10} and $PM_{2.5}$ during grading activities associated with Phase 2 of the proposed project. This is primarily due to the daily export of approximately 4,000 cubic yards of soil that would be required for excavation of the below grade parking level associated with this Phase. No other criteria pollutant would exceed the SCAQMD significance thresholds during the project's construction.

The following mitigation measures identified in the BECSP EIR shall be implemented (and complied with prior to issuance of any grading permit) as part of the proposed project to improve air quality emissions generated by construction activities associated with the proposed project.

Table 4.2-4 Estimated Daily Peak Construction Emissions in Pounds per Day

Emissions Source	Peak Day Emissions in Pounds per Day					
	VOC	NO_X	CO	SO_X	PM_{10}[a]	$PM_{2.5}$[a]
2012 – PHASE 1 (DEMOLITION/GRADING/TRENCHING/BUILDING CONSTRUCTION)						
Exhaust	8.79	52.42	54.26	0.05	3.36	3.09
Fugitive Dust	0.00	0.00	0.00	0.00	8.87	1.85
Maximum Daily Emissions	***8.79***	***52.42***	***54.26***	***0.05***	***12.23***	***4.94***
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	No	No	No	No	No	No
2013 – PHASE 1 (PAVING/BUILDING CONSTRUCTION/ARCHITECTURAL COATINGS)						
Exhaust	106.42	34.57	43.13	0.20	2.39	2.20
Fugitive Dust	0.00	0.00	0.00	0.00	0.20	0.07
Maximum Daily Emissions	***106.42***	***34.57***	***43.13***	***0.20***	***2.59***	***2.27***
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	No	No	No	No	No	No
2015 – PHASE 2 (DEMOLITION/GRADING/TRENCHING/BUILDING CONSTRUCTION)						
Exhaust	4.72	29.23	37.27	0.04	1.55	1.42
Fugitive Dust	0.00	0.00	0.00	0.00	400.00	83.75
Maximum Daily Emissions	***4.72***	***29.23***	***37.27***	***0.04***	***401.55***	***85.17***
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	No	No	No	No	**Yes**	**Yes**
2016 – PHASE 2 (BUILDING CONSTRUCTION)						
Exhaust	2.93	15.43	27.23	0.04	0.89	0.81
Fugitive Dust	0.00	0.00	0.00	0.00	0.18	0.06
Maximum Daily Emissions	***2.93***	***15.43***	***27.23***	***0.04***	***1.07***	***0.87***
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	No	No	No	No	No	No
2017 – PHASE 2 (BUILDING CONSTRUCTION/ARCHITECTURAL COATING)						
Exhaust	40.26	14.26	26.73	0.04	0.81	0.73
Fugitive Dust	0.00	0.00	0.00	0.00	0.19	0.07
Maximum Daily Emissions	***40.26***	***24.94***	***26.73***	***0.04***	***1.00***	***0.80***
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	No	No	No	No	No	No

SOURCE: PBS&J 2010 (calculation sheets are provided in Appendix A)
Assumes the implementation of all BECSP EIR Mitigation Measures

BECSP MM4.2-1 Project applicants shall require by contract specifications that all diesel-powered equipment used will be retrofitted with after-treatment products (e.g., engine catalysts). Contract specifications shall be included in project construction documents, which shall be reviewed by the City of Huntington Beach prior to issuance of a grading permit.

BECSP MM4.2-2 Project applicants shall require by contract specifications that all heavy-duty diesel-powered equipment operating and refueling at the project site use low-NO_X diesel fuel to the extent that it is readily available and cost effective (up to 125 percent of the cost of California Air Resources Board diesel) in the South Coast Air Basin (this does not apply to diesel-powered trucks traveling to and from the project site). Contract specifications shall be included in project construction documents, which shall be reviewed by the City of Huntington Beach prior to issuance of a grading permit.

BECSP MM4.2-3 Project applicants shall require by contract specifications that construction equipment engines be maintained in good condition and in proper tune per manufacturer's specification for the duration of construction. Contract specifications shall be included in project construction documents, which shall be reviewed by the City of Huntington Beach prior to issuance of a grading permit.

BECSP MM4.2-4 Project applicants shall require by contract specifications that construction operations rely on the electricity infrastructure surrounding the construction site rather than electrical generators powered by internal combustion engines. Contract specifications shall be included in project construction documents, which shall be reviewed by the City of Huntington Beach prior to issuance of a grading permit.

BECSP MM4.2-5 As required by South Coast Air Quality Management District Rule 403—Fugitive Dust, all construction activities that are capable of generating fugitive dust are required to implement dust control measures during each phase of project development to reduce the amount of particulate matter entrained in the ambient air. These measures include the following:

- *Application of soil stabilizers to inactive construction areas*
- *Quick replacement of ground cover in disturbed areas*
- *Watering of exposed surfaces three times daily*
- *Watering of all unpaved haul roads three times daily*
- *Covering all stock piles with tarp*
- *Reduction of vehicle speed on unpaved roads*
- *Post signs on-site limiting traffic to 15 miles per hour or less*
- *Sweep streets adjacent to the project site at the end of the day if visible soil material is carried over to adjacent roads*
- *Cover or have water applied to the exposed surface of all trucks hauling dirt, sand, soil, or other loose materials prior to leaving the site to prevent dust from impacting the surrounding areas*
- *Install wheel washers where vehicles enter and exit unpaved roads onto paved roads to wash off trucks and any equipment leaving the site each trip*

BECSP MM4.2-6 Project applicants shall require by contract specifications that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 30 minutes. Diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds shall be turned off when not in use for more than 5 minutes. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.

BECSP MM4.2-7 Project applicants shall require by contract specifications that construction parking be configured to minimize traffic interference during the construction period and, therefore, reduce idling of traffic. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.

BECSP MM4.2-8 Project applicants shall require by contract specifications that temporary traffic controls are provided, such as a flag person, during all phases of construction to facilitate smooth traffic flow. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.

BECSP MM4.2-9 Project applicants shall require by contract specifications that construction activities that would affect traffic flow on the arterial system be scheduled to off-peak hours (10:00 AM to 4:00 PM). Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.

BECSP MM4.2-10 Project applicants shall require by contract specifications that dedicated on-site and off-site left-turn lanes on truck hauling routes be utilized for movement of construction trucks and equipment on site and off site to the extent feasible during construction activities. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.

BECSP MM4.2-11 Upon issuance of building or grading permits, whichever is issued earlier, notification shall be mailed to owners and occupants of all developed land uses within 300 feet of a project site within the Specific Plan providing a schedule for major construction activities that will occur through the duration of the construction period. In addition, the notification will include the identification and contact number for a community liaison and designated construction manager that would be available on site to monitor construction activities. The construction manager shall be responsible for complying with all project requirements related to PM_{10} generation. The construction manager will be located at the on-site construction office during construction hours for the duration of all construction activities. Contract information for the community liaison and construction manager will be located at the construction office, City Hall, the police department, and a sign on site.

In order to reduce the VOC emissions levels associated with architectural coatings, the following mitigation measures would be implemented:

BECSP MM4.2-12 Project applicants shall require by contract specifications that the architectural coating (paint and primer) products used would have a VOC rating of 125 grams per liter or less. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed and approved by the City of Huntington Beach.

BECSP MM4.2-13 Project applicants shall require by contract specifications that materials that do not require painting be used during construction to the extent feasible. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed and approved by the City of Huntington Beach.

BECSP MM4.2-14 Project applicants shall require by contract specifications that pre-painted construction materials be used to the extent feasible. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed and approved by the City of Huntington Beach.

Compliance with the BECSP EIR mitigation measures would reduce emissions of criteria pollutants, including PM_{10} and $PM_{2.5}$, but not below the SCAQMD thresholds of significance. With implementation of the identified BECSP EIR mitigation measures, construction activities would exceed the SCAQMD emission thresholds for PM_{10} and $PM_{2.5}$ during construction and this impact would be ***significant and unavoidable.***

Impact 4.2-3 **Operation activities associated with the proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. This would be a *less than significant* impact.**

Operational emissions generated by both stationary and mobile sources would result from normal day-to-day activities in the proposed project area after build-out. Stationary area source emissions would be generated by space and water heating devices, and the operation of landscape maintenance equipment. Mobile emissions would be generated by motor vehicles traveling to and from the project site.

The analysis of daily operational emissions from the proposed project has been prepared utilizing the URBEMIS 2007 computer model recommended by the SCAQMD. The results of the URBEMIS 2007 calculations for the daily operational emissions of the proposed project are presented in Table 4.2-5 (Proposed Project Net Daily Operational Emissions) (refer to Appendix A for URBEMIS 2007 outputs). The emissions shown below reflect the net increase in emissions anticipated by implementation of the proposed project.

Table 4.2-5 Proposed Project Net Daily Operational Emissions

	Emissions in Pounds per Day[a]					
Emissions Source	***VOC***	***NO_X***	***CO***	***SO_X***	***PM_{10}***	***$PM_{2.5}$***
Water and Space Heating (Natural gas)	0.20	2.59	1.21	0.00	0.0	0.0
Landscape Maintenance	0.37	0.06	4.64	0.00	0.02	0.02
Consumer Products	12.74	—	—	—	—	
Architectural Coatings	0.36	—	—	—	—	
Motor Vehicles	21.06	28.60	240.41	0.34	57.01	11.01
Maximum Daily Emissions	***34.73***	***31.25***	***246.26***	***0.34***	***57.03***	***11.03***
SCAQMD Thresholds (lb/day)	55.00	55.00	550.00	150.00	150.00	55.00
Significant Impact	No	No	No	No	No	No

SOURCE: PBS&J 2010 (calculation sheets are provided in Appendix A).
a. Assumes no natural gas fireplaces.

As shown, operation of the proposed project would not generate emissions that exceed the thresholds of significance recommended by the SCAQMD for any criteria pollutants. As the proposed project would not generate daily emissions that exceed the thresholds of significance recommended by the SCAQMD this impact would be ***less than significant***. No mitigation is required.

Threshold	Would the proposed project expose sensitive receptors to substantial pollutant concentrations?

Impact 4.2-4 **Construction of the proposed project would expose sensitive receptors to substantial pollutant concentrations. This would be a potentially significant impact. Implementation of mitigation measures Project MM4.2-15 and MM4.2-16 would reduce this impact, but not to a less than significant level. Therefore, this would be a *significant and unavoidable* impact.**

As described above under Impact 4.2-2, emissions from construction activities were estimated using the URBEMIS 2007 emissions model. Construction emissions related to development of the project are shown in Table 4.2-4. For the purposes of this analysis, all emissions shown in Table 4.2-4 are assumed to originate from the proposed project site, including use of diesel-powered construction equipment. These on-site mitigated construction emissions were then incorporated into the AERMOD dispersion model to estimate associated concentrations at the closest off-site sensitive receptors.

Sensitive receptors identified for the project include the existing residential properties to the north, east, south, and west of the project site as well as onsite residential and local schools. Proposed residential uses at the Warner Mixed-Use building (Phase 1) would be occupied during the construction of the Beach Mixed-Use building (Phase 2). The Liberty Christian and Oakview Elementary Schools are located within 0.25 mile, northwest and southwest of the project site, respectively. The Ocean View School is located approximately 0.5 mile west of the project site. A map showing the locations of these receptors with respect to the revised project is included in Appendix A.

LSTs have been developed by the SCAQMD to determine maximum allowable concentrations of criteria air pollutants during construction. Localized concentrations were estimated, as discussed above in the Analytic Method section and assume implementation of mitigation measures BECSP MM4.2-1 through BECSP MM4.2-11 as well as mitigation measures Project MM4.2-15 and MM4.2-16. Total LST construction emissions are included in Table 4.2-6 (Total Construction Emissions and Localized Significance Thresholds CO and NO_X) and Table 4.2-7 (Total Construction Emissions and Localized Significance Thresholds PM_{10} and $PM_{2.5}$). The maximum modeled concentrations are presented as measured at each sensitive receptor.

The highest construction emissions for CO and NO_X are estimated during Phase 1. While there are no onsite receptors anticipated during Phase 1, the maximum onsite emissions recorded during Phase 1 were substituted as potential maximum emissions for onsite receptors during Phase 2. This represents a conservative analysis for Phase 2. As shown in Tables 4.2-6, localized CO and NO_2 would not exceed SCAQMD thresholds during proposed project construction at any of the identified sensitive receptors. Table 4.2-7 shows that PM_{10} and $PM_{2.5}$ exceed the SCAQMD thresholds at all sensitive receptors during the grading portion of Phase 2.

Table 4.2-6 Total Construction Emissions and Localized Significance Thresholds CO and NO_X

Pollutant and Averaging Time	*Receptor Location*	*Background Air Quality (ppm)[a]*	*Maximum Incremental Project-Related Impact (ppm)*	*Total Impact (Background + Project) (ppm)*	*Most Restrictive Air Quality Standard (ppm)*	*Significant Impact?*
CO, 1-hour	North Residential	5	0.0591	5.0591	20	No
	East Residential	5	0.0374	5.0374	20	No
	South Residential	5	0.0442	5.0442	20	No
	West Residential	5	0.0575	5.0575	20	No
	Onsite Residential	5	0.1165	5.1156	20	No
	Liberty Christian School	5	0.0368	5.0368	20	No
	Oakview Elementary	5	0.0215	5.0215	20	No
	Ocean View School	5	0.0209	5.0209	20	No
CO, 8-hour	North Residential	3.1	0.0357	3.1357	9	No
	East Residential	3.1	0.0088	3.1088	9	No
	South Residential	3.1	0.0186	3.1186	9	No
	West Residential	3.1	0.0319	3.1319	9	No
	Onsite Residential	3.1	0.0782	3.1782	9	No
	Liberty Christian School	3.1	0.0076	3.1076	9	No
	Oakview Elementary	3.1	0.0048	3.1048	9	No
	Ocean View School	3.1	0.0036	3.1036	9	No
NO_2, 1-hour	North Residential	0.10	0.0020	0.1020	0.18	No
	East Residential	0.10	0.0016	0.1016	0.18	No
	South Residential	0.10	0.0015	0.1015	0.18	No
	West Residential	0.10	0.0020	0.1020	0.18	No
	Onsite Residential	0.10	0.0050	0.1050	0.18	No
	Liberty Christian School	0.10	0.0035	0.1035	0.18	No
	Oakview Elementary	0.10	0.0021	0.1021	0.18	No
	Ocean View School	0.10	0.0047	0.1047	0.18	No
NO_2, Annual	North Residential	0.013	0.0003464	0.0148464	0.03	No
	East Residential	0.013	0.0000549	0.0145549	0.03	No
	South Residential	0.013	0.0001535	0.0146535	0.03	No
	West Residential	0.013	0.0001875	0.0146875	0.03	No
	Onsite Residential	0.013	0.0012573	0.0157573	0.03	No
	Liberty Christian School	0.013	0.0000834	0.0145834	0.03	No
	Oakview Elementary	0.013	0.0000518	0.0145518	0.03	No
	Ocean View School	0.013	0.0000403	0.0145403	0.03	No

SOURCE: PBS&J 2010; AERMOD, Localized Significance Threshold Methodology (calculation data sheets provided in Appendix A)

Table 4.2-7 Total Construction Emissions and Localized Significance Thresholds PM_{10} and $PM_{2.5}$

Pollutant and Averaging Time	*Receptor Location*	*Maximum Incremental Project Related Impact (µg/m³)*	*Most Restrictive Air Quality Standard (µg/m³)*	*Significant Impact?*
PM_{10}, 24-hour	North Residential	347.91489	10.4	**Yes**
	East Residential	812.27112	10.4	**Yes**
	South Residential	1,227.65613	10.4	**Yes**
	West Residential	1,227.65613	10.4	**Yes**
	Onsite Residential	522.34662	10.4	**Yes**
	Liberty Christian School	201.21873	10.4	**Yes**
	Oakview Elementary	191.49565	10.4	**Yes**
	Ocean View School	107.50422	10.4	**Yes**
PM_{10}, Annual	North Residential	74.26080	1.0	**Yes**
	East Residential	256.63290	1.0	**Yes**
	South Residential	347.93747	1.0	**Yes**
	West Residential	347.93747	1.0	**Yes**
	Onsite Residential	135.41505	1.0	**Yes**
	Liberty Christian School	17.32166	1.0	**Yes**
	Oakview Elementary	19.24685	1.0	**Yes**
	Ocean View School	8.44650	1.0	**Yes**
$PM_{2.5}$, 24-hour	North Residential	49.28412	10.4	**Yes**
	East Residential	121.64883	10.4	**Yes**
	South Residential	203.19781	10.4	**Yes**
	West Residential	203.19781	10.4	**Yes**
	Onsite Residential	80.67035	10.4	**Yes**
	Liberty Christian School	15.64122	10.4	**Yes**
	Oakview Elementary	21.09180	10.4	**Yes**
	Ocean View School	10.61215	10.4	**Yes**
$PM_{2.5}$, Annual	North Residential	15.55095	1.0	**Yes**
	East Residential	53.73774	1.0	**Yes**
	South Residential	72.85510	1.0	**Yes**
	West Residential	72.85510	1.0	**Yes**
	Onsite Residential	28.35608	1.0	**Yes**
	Liberty Christian School	3.62740	1.0	**Yes**
	Oakview Elementary	4.03049	1.0	**Yes**
	Ocean View School	1.76867	1.0	**Yes**

SOURCE: PBS&J 2010; AERMOD, Localized Significance Threshold Methodology (calculation data sheets provided in Appendix A)

With the implementation of mitigation measures BECSP MM4.2-1 through BECSP MM4.2-11, as well as mitigation measures Project MM4.2-15 and MM4.2-16, the emissions of PM_{10} and $PM_{2.5}$ will be reduced during construction. However, even with the inclusion of mitigation measures Project MM4.2-15 and MM4.2-16, emissions of PM_{10} and $PM_{2.5}$ are anticipated to remain above the SCAQMD LST thresholds. Therefore, even after the implementation of mitigation, impacts to localized sensitive receptors will remain ***significant and unavoidable*** during construction.

Project MM4.2-15 *Project applicants shall require by contract specifications that all paving be completed as soon as possible to reduce fugitive dust emissions.*

Project MM4.2-16 *Project applicants shall require by contract specifications that all paving be completed as soon as possible to reduce fugitive dust emissions.*

Impact 4.2-5 **Operation of the proposed project would increase local traffic volumes above existing conditions, but would not expose sensitive receptors to substantial localized carbon monoxide (CO) concentrations. This impact is considered *less than significant*.**

The intersections identified in Table 4.2-8 (Proposed Project Build-Out [2030] Localized Carbon Monoxide Concentrations) are located in the project vicinity and were found to operate at LOS D, E, or F under year 2030 conditions in the BECSP EIR. These intersections may generate high CO concentrations that could exceed the federal or state 1-hour and 8-hour standards. As the proposed project would contribute project-related traffic to these intersections, they are evaluated in this EIR. As shown in Table 4.2-8, future CO concentrations near these intersections would not exceed the national 35.0 ppm and state 20.0 ppm 1-hour ambient air quality standards or the national or state 9.0 ppm 8-hour ambient air quality standards when the BECSP is fully implemented in 2030. Therefore, sensitive receptors located in close proximity to these intersections would not be exposed to substantial pollutant concentrations. The proposed project would result in a ***less than significant*** impact.

Table 4.2-8 Proposed Project Build-Out (2030) Localized Carbon Monoxide Concentrations

Intersection	CO Concentrations in Parts per Million[a,b]					
	Roadway Edge		25 Feet		50 Feet	
	1-Hour[c]	8-Hour	1-Hour[c]	8-Hour	1-Hour[c]	8-Hour
Beach Boulevard and Warner Avenue	5.5	3.5	5.4	3.4	5.3	3.3
Newland Street and Warner Avenue	5.4	3.4	5.2	3.3	5.2	3.2
Beach Boulevard and Slater Avenue	5.4	3.4	5.3	3.3	5.2	3.3
State Standards	**20.0**	**9.0**	**20.0**	**9.0**	**20.0**	**9.0**
National Standards	**35.0**	**9.0**	**35.0**	**9.0**	**35.0**	**9.0**
Significant Impact	No	No	No	No	No	No

SOURCE: PBS&J, 2009. The Beach and Edinger Corridors Specific Plan EIR.

Threshold	Would the project create objectionable odors affecting a substantial number of people?

Impact 4.2-6 **Construction and operation of the proposed project would not create objectionable odors affecting a substantial number of people. This impact is considered *less than significant*.**

The proposed project would not implement or facilitate uses that are significant sources of objectionable odors. Potential sources of odor associated with the proposed project may result from construction equipment exhaust and application of asphalt and architectural coatings during construction activities, the temporary storage of typical household solid waste (refuse) associated with residential (long-term operational) uses, as well as odors produced from the various commercial uses, including restaurants. Standard construction requirements would be imposed to minimize odors from construction. Any construction-related odor emissions would be temporary, short-term, and intermittent in nature, and impacts associated with construction-related odors are expected to be less than significant. It is expected that any project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City's solid waste regulations. Therefore, odors associated with construction and operation of the proposed project would be ***less than significant***. No mitigation is required.

4.2.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less than significant impact or significant and unavoidable impact, and is not provided for those thresholds that result in no project-related impacts.

The geographic context for cumulative air quality impacts is SRA 18, which covers the Northern Coastal Orange County area. This analysis, therefore, accounts for all anticipated cumulative growth within this geographic area, including ambient growth along with development of the related projects provided in Table 3-2 (List of Related Development Projects) in Chapter 3 (Project Description) of this EIR.

Threshold	Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?

As discussed in Impact 4.2-1, growth considered to be inconsistent with the AQMP could interfere with attainment of federal or state ambient air quality standards because this growth is not included in the projections utilized in the formulation of the AQMP. Consequently, as long as growth in the Basin is within the projections for growth identified in the Growth Management chapter of the RCPG, implementation of the AQMP would not be obstructed by such growth. Should projections exceed the anticipated growth forecasts of the RCPG, impacts with respect to AQMP consistency would occur. However, growth under the proposed project would be considered consistent with the overall growth assumptions of the City of Huntington Beach General Plan and is therefore consistent with the RCPG, and the 2007 AQMP. The proposed project, with respect to potential conflicts with the AQMP, would not represent a cumulatively considerable contribution and this cumulative impact would be ***less than significant***.

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

A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state nonattainment pollutant. Because the Basin is currently in nonattainment for O_3 (for which VOC and NO_X are precursors) and PM_{10} under national and state standards, and is in nonattainment for CO under national standards, projects could cumulatively exceed an air quality standard or contribute to an existing or projected air quality exceedance. With regard to determining the significance of the proposed project contribution, the SCAQMD neither recommends quantified analyses of cumulative construction or operational emissions nor provides separate methodologies or thresholds of significance to be used to assess cumulative construction or operational impacts. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project-specific impacts; that is, individual development projects that generate construction-related or operational emissions that exceed the SCAQMD-recommended daily thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment.

Construction of the proposed project would generate emissions that exceed the thresholds of significance recommended by the SCAQMD for PM_{10} and $PM_{2.5}$. Because the Basin is in nonattainment for PM_{10} and $PM_{2.5}$, the proposed project would make a cumulatively considerable contribution to criteria pollutant emissions. Because no feasible mitigation is available to further reduce these contributions to levels below SCAQMD thresholds, this cumulative impact is considered to be ***significant and unavoidable***.

For clarification, and as evident by the above analysis, this threshold essentially repeats the analysis provided in Impact 4.2-2 and applies it to the cumulative condition, whereby any individual project that exceeds the SCAQMD recommended daily thresholds for project-specific impacts is considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment.

Threshold	Would the proposed project expose sensitive receptors to substantial pollutant concentrations?

A significant impact would occur if a project would add a cumulatively considerable contribution to a localized significant impact. With regard to determining the significance of the proposed project contribution, the SCAQMD neither recommends quantified analyses of cumulative construction LST emissions nor provides separate methodologies or thresholds of significance to be used to assess cumulative construction LST impacts. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project-specific impacts; that is, individual development projects that generate construction-related emissions that exceed the SCAQMD-recommended daily thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment.

Construction of the proposed project would generate emissions that exceed the LST thresholds of significance recommended by the SCAQMD for PM_{10}, and $PM_{2.5}$. Because the Basin is in nonattainment for PM_{10}, and there is the potential for additional nearby development projects to be conducted at the same time, the proposed project would make a cumulatively considerable contribution to localized significant impacts. No feasible mitigation is available to further reduce these contributions to levels below SCAQMD LST thresholds; this impact is considered to be ***significant and unavoidable***.

Threshold	Would the project create objectionable odors affecting a substantial number of people?

The relevant geographic area for odor impacts is the City, and related projects projected to be built include primarily residential, commercial, and office uses, and could include restaurants. Although construction activities occurring in association with the projects could generate airborne odors associated with the operation of construction vehicles (e.g., diesel exhaust) and the application of interior and exterior architectural coatings, these emissions would only occur during daytime hours, would generally be restricted to the immediate vicinity of the construction site and activity, and standard construction requirements would be imposed with these construction projects to reduce impacts. The odor impacts resulting from residential and commercial projects (i.e., operations) are not expected to affect a substantial amount of people, as activities typically associated with these uses do not emit offensive odors and solid waste from these projects would be stored in special container areas. In addition, restaurants are typically required to have ventilation systems that prevent substantial adverse odor impacts. The project's contribution to the cumulative odor impact is not considerable. Therefore, this cumulative impact is considered ***less than significant***.

4.2.5 References

Austin-Foust Associates. *Beach-Edinger Corridors Specific Plan Area: Traffic Analysis for Beach-Warner Project*, August 19, 2010.

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

California Department of Transportation. *Estimating Mobile Source Air Toxics Emissions: A Step-by-Step Project Analysis Methodology*, December 2006.

Huntington Beach, City of. *City of Huntington Beach General Plan*, May 13, 1996.

South Coast Air Quality Management District. *CEQA Air Quality Handbook*, 1993

———. *2007 Air Quality Management Plan*, 2007.

Western Regional Climate Center. Western Regional Climate Center home page. http://www.wrcc.dri.edu (accessed April 20, 2008).