

# 5.2 Air Quality

## 5.2.1 INTRODUCTION

This section provides an overview of the existing air quality within the City of Santa Ana and surrounding region, a summary of applicable regulations, and analyses of potential short-term and long-term air quality impacts from implementation of the proposed Project. Mitigation measures are recommended as necessary to reduce significant air quality impacts. This section is based upon the Air Quality Impact Analysis (AQ 2019), Prepared by Urban Crossroads, 2019, which is included as Appendix B.

## 5.2.2 REGULATORY SETTING

### United States Environmental Protection Agency

#### Criteria Air Pollutants

At the federal level, the United States Environmental Protection Agency (USEPA) has been charged with implementing national air quality programs. The USEPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments to the CAA were made by Congress in 1990. The CAA requires the USEPA to establish National Ambient Air Quality Standards (NAAQS). The USEPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead. Table 5.2-1 shows the NAAQS for these pollutants.

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. The 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. If the USEPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary sources of air pollution in the air basin.

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. The USEPA's primary role at the state level is to oversee state air quality programs. The USEPA sets federal vehicle and stationary source emissions standards and provides research and guidance in air pollution programs.

#### Hazardous Air Pollutants

The USEPA has programs for identifying and regulating hazardous air pollutants (HAPs). Title III of the CAAA directed the USEPA to promulgate national emissions standards for HAPs (NESHAP). Major sources are defined as stationary sources with potential to emit more than 10 tons per year (tpy) of any HAP or more than 25 tpy of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), the USEPA developed

technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum achievable control technology (MACT). For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the USEPA promulgated health-risk-based emissions standards when deemed necessary, to address risks remaining after implementation of the technology-based NESHAP standards.

**Table 5.2-1: Ambient Air Quality Standards for Criteria Pollutants**

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
<b>Ozone</b>	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when ROG and NO <sub>x</sub> 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		
<b>Carbon Monoxide (CO)</b>	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		
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>	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		
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>	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	---	0.50 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Arithmetic Mean	---	0.03 ppm		
<b>Respirable Particulate Matter (PM<sub>10</sub>)</b>	24 hours	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	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 <sup>3</sup>	---		
<b>Fine Particulate Matter (PM<sub>2.5</sub>)</b>	24 hours	---	35 µg/m <sup>3</sup>	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 <sub>x</sub> , sulfur oxides, and organics.
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>		
<b>Lead (Pb)</b>	30 Day Average	1.5 µg/m <sup>3</sup>	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases).	<i>Present source:</i> lead smelters, battery manufacturing and recycling facilities. <i>Past source:</i> combustion of leaded gasoline.
	Calendar Quarter	---	1.5 µg/m <sup>3</sup>		
	Rolling 3-Month Average	---	0.15 µg/m <sup>3</sup>		
<b>Hydrogen Sulfide</b>	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
<b>Sulfates (SO<sub>4</sub>)</b>	24 hour	25 µg/m <sup>3</sup>	No National Standard	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardiopulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.
<b>Visibility Reducing Particles</b>	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 <sub>2.5</sub> .

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

The CAAA also required the USEPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-

butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

## California Air Resources Board

### Criteria Air Pollutants

The California Air Resources Board (CARB), a department of the California Environmental Protection Agency, oversees air quality planning and control throughout California. CARB is responsible for coordination and oversight of state and local air pollution control programs in California and for implementation of the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, requires CARB to establish the California Ambient Air Quality Standards (CAAQS). CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. Applicable CAAQS are shown in Table 5.2-1.

The CCAA requires all local air districts in the state to endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts shall focus particular attention on reducing the emissions from transportation and area-wide emission sources and provides districts with the authority to regulate indirect sources.

Among CARB's other responsibilities are overseeing compliance by local air districts with California and federal laws, approving local air quality plans, submitting SIPs to the USEPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

### Diesel Regulations

The CARB and the Ports of Los Angeles and Long Beach have adopted several iterations of regulations for diesel trucks that are aimed at reducing diesel particulate matter (DPM). More specifically, the CARB Drayage Truck Regulation, the CARB statewide On-road Truck and Bus Regulation, and the Ports of Los Angeles and Long Beach "Clean Truck Program" (CTP) require accelerated implementation of "clean trucks" into the statewide truck fleet. In other words, older more polluting trucks will be replaced with newer, cleaner trucks as a function of these regulatory requirements. Moreover, the average statewide DPM emissions for Heavy Duty Trucks (HHDT), in terms of grams of DPM generated per mile traveled, will dramatically be reduced due to these regulatory requirements. Diesel emissions identified in this analysis would overstate future DPM emissions because not all the regulatory requirements are reflected in the modeling.

### Toxic Air Contaminants

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

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807 [Chapter 1047, Statutes of 1983]) and the Air Toxics Hot Spots Information and Assessment Act (Hot Spots Act) (AB 2588 [Chapter 1252, Statutes of 1987]). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted

the USEPA's list of HAPs as TACs. Most recently, diesel PM was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate best available control technology to minimize emissions.

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

CARB published the Air Quality and Land Use Handbook: A Community Health Perspective (Handbook), which provides guidance concerning land use compatibility with TAC sources (CARB, 2005). Although it is not a law or adopted policy, the Handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way. In addition, CARB has promulgated the following specific rules to limit TAC emissions:

- **CARB Rule 2485** (13 CCR, Chapter 10 Section 2485), Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- **CARB Rule 2480** (13 CCR Chapter 10 Section 2480), Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- **CARB Rule 2477** (13 CCR Section 2477 and Article 8), Airborne Toxic Control Measure for In-Use Diesel Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

## SCAQMD

### Criteria Air Pollutants

South Coast Air Quality Management District (SCAQMD) attains and maintains air quality conditions in the Basin 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 plans applicable to the proposed Project are discussed below.

### Air Quality Management Plan

SCAQMD and the Southern California Association of Governments (SCAG) are responsible for preparing the air quality management plan (AQMP), which addresses federal and state CAA requirements. The AQMP details goals, policies, and programs for improving air quality in the Basin. In March 2017 AQMD finalized the 2016 AQMP, which provides integrated strategies and control measures to meet the NAAQS, as well as, explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels. The 2016 AQMP incorporates scientific and technological information and planning assumptions, including SCAG's 2016 RTP/SCS and updated emission inventory methodologies for various source categories.

**SCAQMD Rules and Regulations**

All projects are subject to SCAQMD rules and regulations. Specific rules applicable to the proposed Project include the following:

**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.** SCAQMD Rule 403 governs emissions of fugitive dust during and after construction. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires project applicants to control fugitive dust using the best available control measures such that dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a, off-site nuisance. Applicable Rule 403 dust suppression (and PM<sub>10</sub> generation) techniques to reduce impacts on nearby sensitive receptors may include, but are not limited to, the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least three times daily. Locations where grading is to occur shall be thoroughly watered prior to earthmoving.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meters (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.
- Suspend all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Provide bumper strips or similar best management practices where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replant disturbed areas as soon as practical.
- Sweep onsite streets (and off-site streets if silt is carried to adjacent public thoroughfares) to reduce the amount of particulate matter on public streets. All sweepers shall be compliant with SCAQMD Rule 1186.1, Less Polluting Sweepers.

**Rule 431.2 – Sulfur Content of Liquid Fuels.** This rule limits the sulfur content in diesel and other liquid fuels for the purpose of both reducing the formation of sulfur oxides and particulates during combustion and to enable the use of add-on control devices for diesel fueled internal combustion engines.

**Rule 445 – Wood Burning.** This rule prohibits permanently installed wood burning devices into any new development. A wood burning device means any fireplace, wood burning heater, or pellet-fueled wood heater, or any similarly enclosed, permanently installed, indoor or outdoor device burning any solid fuel for aesthetic or space-heating purposes, which has a heat input of less than one million British thermal units per hour.

**Rule 481 – Spray Coating.** This rule applies to all spray painting and spray coating operations and equipment and states that a person shall not use or operate any spray painting or spray coating equipment unless one of the following conditions is met:

- The spray coating equipment is operated inside a control enclosure, which is approved by the Executive Officer. Any control enclosure for which an application for permit for new construction, alteration, or change of ownership or location is submitted after the date of adoption of this rule shall be exhausted only through filters at a design face velocity not less than 100 feet per minute nor greater than 300 feet per minute, or through a water wash system designed to be equally effective for the purpose of air pollution control.
- Coatings are applied with high-volume low-pressure, electrostatic and/or airless spray equipment.
- An alternative method of coating application or control is used which has effectiveness equal to or greater than the equipment specified in the rule.

**Rule 1108 - Volatile Organic Compounds.** This rule governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the Basin. This rule also regulates the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the Project must comply with SCAQMD Rule 1108.

**Rule 1113 – Architectural Coatings.** No person shall apply or solicit the application of any architectural coating within the SCAQMD with VOC content in excess of the values specified in a table incorporated in the Rule. A list of low/no-VOC paints is provided at the following SCAQMD website: [www.aqmd.gov/prdas/brochures/paintguide.html](http://www.aqmd.gov/prdas/brochures/paintguide.html). All paints will be applied using either high volume low-pressure spray equipment or by hand application.

**Rule 1143 – Paint Thinners and Solvents.** This rule governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

**Rule 1186 – Emissions from Paved and Unpaved Roads.** The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of vehicular travel and requires that any owner or operator of a paved public road on which there is visible roadway accumulations shall begin removal of such material through street cleaning within 72 hours of any notification of the accumulation and shall completely remove such material as soon as feasible.

**Rule 1186.1 - Less-Polluting Sweepers.** This rule requires public and private sweeper fleet operators to acquire alternative-fuel or otherwise less-polluting sweepers when purchasing or leasing these vehicles for sweeping operations.

### City of Santa Ana General Plan

The City is currently undergoing a comprehensive update to the General Plan. The General Plan Conservation Element includes goals, policies, and objectives to protect public health, safety and welfare through effective management of natural resources such as clean air. The existing Conservation Element goal, objective, and policy relevant to the proposed Project include:

**Goal 1:** Protect the public health, safety and welfare through effective management of natural resources.

**Objective 1.1:** Reduce air pollution emissions to achieve national ambient air quality standards.

**Policy:**

- Support local and regional land use and transportation plans that increase mass transit usage and reduce vehicle trips.

## 5.2.3 ENVIRONMENTAL SETTING

### Climate and Meteorology

The City of Santa Ana is located within the South Coast Air Basin (Basin), which is under the jurisdiction of the SCAQMD. The Basin 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 Basin 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 Basin an area of high air pollution potential. The Basin 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 which produce ozone.

## Criteria Air Pollutants

The CARB and the USEPA currently focus on the following air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM<sub>10</sub>), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM<sub>2.5</sub>), and lead. These pollutants are referred to as “criteria air pollutants” because they are the most prevalent air pollutants known to be injurious to human health. Extensive health-effects criteria documents regarding the effects of these pollutants on human health and welfare have been prepared over the years.<sup>1</sup> Standards have been established for each criteria pollutant to meet specific public health and welfare criteria set forth in the federal CAA. California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (CAAQS or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard (NAAQS), such as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

**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 reactive organic gases (ROGs) or volatile organic compounds (VOCs), and oxides of nitrogen (NO<sub>x</sub>). While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB and is based on a list of exempted carbon compounds determined by CARB. VOC is a term used by the USEPA and is based on its own exempt list. 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 is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and 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.

**Nitrogen Dioxide.** NO<sub>2</sub> is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO<sub>2</sub>. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO<sub>2</sub>. The combined emissions of NO and NO<sub>2</sub> are referred to as NO<sub>x</sub>, which are reported as equivalent NO<sub>2</sub>. Aside from its contribution to ozone formation, NO<sub>2</sub> can increase the risk of acute and chronic respiratory disease and reduce visibility. NO<sub>2</sub> may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

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<sup>1</sup> Additional sources of information on the health effects of criteria pollutants can be found at CARB and USEPA’s websites at <http://www.arb.ca.gov/research/health/health.htm> and <http://www.epa.gov/air/airpollutants.html>, respectively.



**Sulfur Dioxide.** SO<sub>2</sub> 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<sub>2</sub> oxidizes in the atmosphere, it forms sulfur trioxide (SO<sub>3</sub>). Collectively, these pollutants are referred to as sulfur oxides (SO<sub>x</sub>).

Major sources of SO<sub>2</sub> include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO<sub>2</sub> 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<sub>2</sub> potentially causes wheezing, shortness of breath, and coughing. Long-term SO<sub>2</sub> exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

**Particulate Matter.** PM<sub>10</sub> and PM<sub>2.5</sub> 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<sub>10</sub> and PM<sub>2.5</sub> 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. Particulate matter can also damage materials and reduce visibility. One common source of PM<sub>2.5</sub> is diesel exhaust emissions.

PM<sub>10</sub> consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO<sub>2</sub> and ROG. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM<sub>10</sub> and PM<sub>2.5</sub> are also emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. PM<sub>2.5</sub> can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including ROGs, ammonia (NH<sub>3</sub>), NO<sub>x</sub>, and SO<sub>x</sub>.

**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 Basin, 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.

## Existing Conditions

SCAQMD maintains monitoring stations within district boundaries that monitor air quality and compliance with associated ambient standards. The Project site is located within the monitoring boundary of the Central Orange County monitoring station (SRA 17), which is 10.2 miles northwest of the Project site. The most recent 3 years of data is shown on Table 5.2-2 and identifies the number of days ambient air quality standards were exceeded in the area. Additionally, data for SO<sub>2</sub> has been omitted as attainment is regularly met in the South Coast Air Basin and few monitoring stations measure SO<sub>2</sub> concentrations.

**Table 5.2-2: Air Quality Monitoring Summary 2016-2018**

Pollutant	Standard	Year		
		2016	2017	2018
<b>O<sub>3</sub></b>				
Maximum Federal 1-Hour Concentration (ppm)		.103	0.090	0.112
Maximum Federal 8-Hour Concentration (ppm)		.074	0.076	0.071
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm		0	1
Number of Days Exceeding State/Federal 8-Hour Standard	> 0.070 ppm		4	1
<b>CO</b>				
Maximum Federal 1-Hour Concentration	> 35 ppm	2.6	2.5	2.3
Maximum Federal 8-Hour Concentration	> 20 ppm	2.1	2.1	1.9
<b>NO<sub>2</sub></b>				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.064	0.081	0.067
Annual Average		0.015	0.014	0.013
<b>PM<sub>10</sub></b>				
Maximum Federal 24-Hour Concentration (µg/m <sup>3</sup> )	> 150 µg/m <sup>3</sup>	4	128	129
Annual Federal Arithmetic Mean (µg/m <sup>3</sup> )		24.4	26.3	27.2
Number of Days Exceeding Federal 24-Hour Standard	> 150 µg/m <sup>3</sup>		0	0
Number of Days Exceeding State 24-Hour Standard	> 50 µg/m <sup>3</sup>		17	13
<b>PM<sub>2.5</sub></b>				
Maximum Federal 24-Hour Concentration (µg/m <sup>3</sup> )	> 35 µg/m <sup>3</sup>	44.45	53.90	54.10
Annual Federal Arithmetic Mean (µg/m <sup>3</sup> )	> 12 µg/m <sup>3</sup>	9.47	11.39	11.02
Number of Days Exceeding Federal 24-Hour Standard	> 35 µg/m <sup>3</sup>	1	6	3

Source: Urban Crossroads, 2019.

Both CARB and the 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. Nonattainment is defined as any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the primary or secondary ambient air quality standard for the pollutant. Attainment is defined as any area that meets the primary or secondary ambient air quality standard for the pollutant. Unclassifiable is defined as any area that cannot be classified on the basis of available information as meeting or not meeting the primary or secondary ambient air quality standard for the pollutant. In addition, California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment.

In 2018, the federal and state ambient air quality standards (NAAQS and CAAQS) were exceeded on one or more days for ozone, O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> at most monitoring locations. No areas of the SCAB exceeded federal or state standards for NO<sub>2</sub>, or CO. See Table 5.2-3, for attainment designations for the SCAB.

**Table 5.2-3: Attainment Status of Criteria Pollutants in the SCAB**

Criteria Pollutant	State Designation	Federal Designation
O <sub>3</sub> – 1-hour standard	Nonattainment	--
O <sub>3</sub> – 8-hour standard	Nonattainment	Nonattainment
PM <sub>10</sub>	Nonattainment	Attainment
PM <sub>2.5</sub>	Nonattainment	Nonattainment
CO	Attainment	Unclassifiable/Attainment
NO <sub>2</sub>	Attainment	Unclassifiable/Attainment
SO <sub>2</sub>	Unclassifiable/Attainment	Unclassifiable/Attainment
Pb <sup>2</sup>	Attainment	Unclassifiable/Attainment

Source: Urban Crossroads, 2019.

The Project site is currently developed with three industrial buildings that total approximately 212,121 square feet. The estimated operation-source emissions from the existing industrial uses on the Project site are provided on Table 5.2-4.

**Table 5.2-4: Existing Industrial Building Operational Air Quality Emissions**

Existing Industrial Operational Activities	Emissions (lbs/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Summer Scenario</b>						
Total Maximum Daily Emissions	11.14	143.55	48.79	0.45	18.81	6.63
<b>Winter Scenario</b>						
Total Maximum Daily Emissions	10.90	146.09	39.59	0.45	18.74	6.61

Source: Urban Crossroads, 2019.

## Sensitive Land Uses

Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, individuals with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as “sensitive receptors”. These structures typically include residences, hotels, hospitals, etc. as they are also known to be locations where an individual can remain for 24 hours. In addition, the SCAQMD LST Methodology states that “LSTs based on shorter averaging periods, such as the NO<sub>2</sub> and CO LSTs, could also be applied to receptors such as industrial or commercial facilities since it is reasonable to assume that a worker at these sites could be present for periods of one to eight hours.”

The nearest receptor where an individual can stay for a 24-hour period is approximately 1,471 feet/ 448 meters south of the Project site. As such, the 440-meter distance is used to evaluate construction and operational air quality impacts for emissions of PM<sub>10</sub> and PM<sub>2.5</sub>. For evaluation of localized NO<sub>2</sub> and CO impacts, the nearest receptor location where an individual can remain onsite for an 8-hour period is the Sirco Irvine Business Park, located 43 feet/ 13 meters northwest of the Project site.

<sup>2</sup> The Federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

## 5.2.4 THRESHOLDS OF SIGNIFICANCE

Appendix G of State CEQA Guidelines indicates that a project could have a significant effect if it were to:

- AQ-1 Conflict with or obstruct implementation of the applicable air quality plan;
- AQ-2 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;
- AQ-3 Expose sensitive receptors to substantial pollutant concentrations; or
- AQ-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

### Regional Thresholds

The SCAQMD's regional significance thresholds are listed in Table 5.2-5. The SCAQMD's CEQA air quality methodology provides that any projects that result in daily emissions that exceed any of these thresholds would have both an individually (project-level) and cumulatively significant air quality impact.

**Table 5.2-5: SCAQMD Regional Air Quality Thresholds**

Pollutant	Construction	Operations
NO <sub>x</sub>	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM <sub>10</sub>	150 lbs/day	150 lbs/day
PM <sub>2.5</sub>	55 lbs/day	55 lbs/day
SO <sub>x</sub>	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

### Localized Significance Thresholds

SCAQMD has also developed localized significance thresholds (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 Basin. The localized thresholds, which are found in the mass rate look-up tables in the "Final Localized Significance Threshold Methodology" document prepared by SCAQMD, were developed for use on projects that are less than or equal to 5-acres in size and are only applicable to the following criteria pollutants: NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>.

The Project's construction activities could actively disturb approximately 1.0 acre per day during demolition, 3.5 acres per day during site preparation, and 4.0 acres per day during grading activities. The applicable SCAQMD localized thresholds from the "Final Localized Significance Threshold Methodology" document's mass rate look-up tables are used to evaluate construction emissions. The applicable LSTs construction thresholds are shown in Table 5.2-6.

**Table 5.2-6: SCAQMD Localized Significance Construction Thresholds**

<b>Pollutant</b>	<b>Construction</b>
NO <sub>x</sub>	81 lbs/day (Demolition)
	149 lbs/day (Site Preparation)
	160 lbs/day (Grading)
CO	485 lbs/day (Demolition)
	984 lbs/day (Site Preparation)
	1,074 lbs/day (Grading)
PM <sub>10</sub>	141 lbs/day (Demolition)
	160 lbs/day (Site Preparation)
	163 lbs/day (Grading)
PM <sub>2.5</sub>	74 lbs/day (Demolition)
	88 lbs/day (Site Preparation)
	91 lbs/day (Grading)

Source: Urban Crossroads, 2019.

### CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles and introduction of cleaner fuels as well as implementation of control technology on industrial facilities, CO concentrations in the South Coast Air Basin and the state have steadily declined. The analysis of CO hotspots compares the volume of traffic that has the potential to generate a CO hotspot and the volume of traffic with implementation of the proposed Project.

## 5.2.1 METHODOLOGY

This analysis 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 equipment usage and from construction-related traffic. Additionally, emissions would be generated from operations of the future residences and from traffic generated by the new residences. The net increase in emissions generated by these activities and other secondary sources have been quantitatively estimated and compared to the applicable thresholds of significance recommended by SCAQMD.

### AQMP Consistency

SCAQMD's CEQA Handbook suggests an evaluation of the following two criteria to determine whether a project involving a legislative land use action (such as the proposed General Plan land use and zoning designation changes) would be consistent or in conflict with the AQMP:

1. The project would not generate population and employment growth that would be inconsistent with SCAG's growth forecasts.
2. The project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

Consistency Criterion No. 1 refers to the SCAG's growth forecast and associated assumptions included in the AQMP. The future air quality levels projected in the AQMP are based on SCAG's growth projections, which are based, in part, on the general plans of cities located within the SCAG region. Therefore, if the level of housing related to the proposed Project are consistent with the applicable assumptions used in the development of the AQMP, the Project would not jeopardize attainment of the air quality levels identified in the AQMP.

Consistency Criterion No. 2 refers to the California Ambient Air Quality Standards. An impact would occur if the long-term emissions associated with the proposed Project would exceed SCAQMD's regional significance thresholds for operation-phase emissions.

### Construction

Short-term construction-generated emissions of criteria air pollutants and ozone precursors from development of the Project were assessed in accordance with methods recommended by SCAQMD. The proposed Project's regional emissions were modeled using the California Emissions Estimator Model (CalEEMod), as recommended by SCAQMD. CalEEMod was used to determine whether short-term construction-related emissions of criteria air pollutants would exceed applicable regional thresholds and where mitigation would be required. Modeling was based on Project-specific data and predicted short-term construction-generated emissions were compared with applicable SCAQMD regional thresholds for determination of significance.

In addition, to determine whether or not construction activities associated with development of the 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 LSTs that 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. The daily total on-site combustion, mobile, and fugitive dust emissions associated with construction were evaluated against SCAQMD's LSTs as appropriate for each activity.

### Operations

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors, including mobile- and area-source emissions from the Project, were also quantified using the CalEEMod computer model. Area-source emissions were modeled according to the size and type of the land uses proposed. Mass mobile-source emissions were modeled based on the increase in daily vehicle trips that would result from the Project. Trip generation rates were available from the traffic impact analysis prepared for the Project (see Appendix B of this EIR). Predicted long-term operational emissions were compared with applicable SCAQMD thresholds for determination of significance.

## 5.2.6 ENVIRONMENTAL IMPACTS

### **IMPACT AQ-1: THE PROJECT WOULD RESULT IN A CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN.**

**Significant and Unavoidable Impact.** The SCAQMD's 2016 AQMP is the applicable air quality plan for the proposed Project. Pursuant to Consistency Criterion No. 1, described in the methodology section previously, 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 that result in air quality emissions.

As detailed in Section 5.11, *Population and Housing*, the proposed 1,150 multi-family residential units at full occupancy would result in a population of approximately 2,081 residents and the proposed 80,000 square feet of commercial space would generate approximately 320 employees at full occupancy. This equates to a 1.5 percent increase in residential units within the City, and the estimated 2,081 residents at complete occupancy would be 0.62 percent of the City's population.

Based on SCAG's 2016 Integrated Growth Forecast, a 7.4 percent increase in growth throughout the County is anticipated to occur through 2040. Hence, the cumulative growth with implementation of the proposed Project would be consistent with the SCAG growth forecasts and population base. Development of the proposed Project, in combination with other development projects in the vicinity would result in a cumulative increase in population. However, the Project's portion of the cumulative increase in residential units (1,150) is limited at 2.39 percent. Thus, the proposed multi-family units would be within the SCAG projected growth. The housing added by the Project would also help to meet housing demands from projected employment growth in the Project vicinity, while maintaining a healthy vacancy rate.

The Project region is jobs-rich. The existing jobs-housing ratio is 2.06 in Santa Ana and is projected to be 2.13 in 2040. The proposed Project would reduce the jobs-housing ratio slightly to 2.05; and to 2.10 in 2040, as shown in Table 5.11-8 in Section 5.11, *Population and Housing*. The balance of jobs and housing and the existing transit, bicycle, and pedestrian infrastructure adjacent to the Project site that is available for use would reduce vehicle miles traveled and the related air quality emissions, as employees could easily travel to employment opportunities within the vicinity of the Project site, including areas within the Cities of Santa Ana, Tustin, and Irvine. Thus, the proposed Project would support AQMP objectives to reduce trips, promote infill/redevelopment, and balance jobs and housing, and would not conflict with implementation of the AQMP.

In addition, implementing redevelopment of the site, the Project would utilize existing infrastructure such as roadways, drainage, sewer and other infrastructure, and would be consistent with the SCAG objective to "Encourage patterns of urban development and land use that reduce costs in infrastructure construction and make better use of existing facilities." As a result, the proposed Project would comply with Consistency Criterion No. 1 listed above in the Methodology Section.

Regarding Consistency Criterion No. 2, which evaluates the potential of the proposed Project to increase the frequency or severity of existing air quality violations; as described previously, an impact related to Consistency Criterion No. 2 would occur if the long-term emissions associated with the proposed Project would exceed SCAQMD's regional significance thresholds for operation-phase emissions. As detailed below in Impact AQ-2, operation of the proposed Project would exceed the threshold of significance for emissions of VOCs and are no feasible mitigation measures that would reduce VOC emissions to below the SCAQMD threshold. Therefore, the proposed Project would result in an impact related to Consistency Criterion No. 2. As a result, impacts related to consistency with the AQMP would be significant and unavoidable.

**IMPACT AQ-2: THE PROJECT WOULD RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF A CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS IN NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD.**

## Construction

**Less than Significant Impact.** Construction activities associated with the proposed Project would result in emissions of CO, VOCs, NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Pollutant emissions associated with construction would

be generated from the following: (1) demolition, grading, and excavation; (2) construction workers traveling to and from the Project site; (3) delivery and hauling of construction supplies to, and debris and soils export from, the Project site; (4) fuel combustion by onsite 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.

Construction emissions are short-term and temporary, lasting approximately 27-months for the proposed Project. The maximum daily construction emissions were estimated using CalEEMod; and the modeling includes compliance with SCAQMD Rules 403, 431.2, 1113, and 1186 / 1186.1 (described above), which are requirements that would reduce air contaminants during construction. Table 5.2-7 provides the maximum daily emissions of criteria air pollutants from construction of the proposed Project and shows that SCAQMD thresholds would not be exceeded. Thus, impacts related to construction emissions would be less than significant with implementation of required SCAQMD Rules.

**Table 5.2-7: Maximum Peak Construction Emissions**

Year	Emissions (lbs/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Summer</b>						
2020	9.90	76.66	74.43	0.28	19.94	6.65
2021	9.14	69.97	69.95	0.28	19.65	6.36
2022	57.57	66.14	76.68	0.30	22.72	7.13
<b>Winter</b>						
2020	10.66	76.98	71.87	0.27	19.94	6.65
2021	9.86	70.20	67.51	0.27	19.65	6.36
2022	58.39	66.38	73.73	0.29	22.72	7.13
<b>Maximum Daily Emissions</b>	<b>58.39</b>	<b>76.98</b>	<b>76.68</b>	<b>0.30</b>	<b>22.72</b>	<b>7.13</b>
SCAQMD Regional Threshold	75	100	550	150	150	55
<b>Threshold Exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: Urban Crossroads, 2019.

## Operation

**Significant and Unavoidable Impact.** Implementation of the proposed Project would result in long-term emissions of criteria air pollutants from area sources generated by the proposed commercial and residential uses, such as vehicular emissions, natural gas consumption, landscaping, applications of architectural coatings, and use of consumer products. The emissions from the proposed Project are primarily from vehicle trips. As described in Section 5.14, *Transportation*, the proposed Project is anticipated to generate 11,546 daily trips, with 534 a.m. peak hour trips and 604 p.m. peak hour trips. The operational emissions from the Project are provided on Table 5.2-8. Detailed operation model outputs are provided in Appendix B.

As shown, emissions from operation of the proposed Project would exceed the threshold of significance for VOCs. The majority of VOC emissions would be derived from consumer products and mobile activity. Consumer products include cleaning supplies, kitchen aerosols, cosmetics and toiletries, the use of which cannot be controlled by the City. Likewise, vehicular emissions cannot be controlled by either the Project applicant or the City. There are no feasible mitigation measures that would reduce VOC emissions to below the SCAQMD threshold. Therefore, operational emissions would be significant and unavoidable.



**Table 5.2-8: Summary of Operational Emissions**

Operational Activities	Emissions (lbs/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Summer Scenario</b>						
Area Source	35.19	20.17	103.39	0.13	2.07	2.07
Energy Source	0.86	7.65	5.05	0.05	0.60	0.60
Mobile Source	38.31	68.83	280.70	0.75	73.61	20.13
<b>Total Project Daily Emissions</b>	<b>74.36</b>	<b>96.65</b>	<b>389.14</b>	<b>0.93</b>	<b>76.27</b>	<b>22.80</b>
<b>Existing Emissions</b>	<b>11.14</b>	<b>143.55</b>	<b>48.79</b>	<b>0.45</b>	<b>18.81</b>	<b>6.63</b>
<b>Net Emissions (Project – Existing)</b>	63.23	-0.52	-0.42	-3.12e-03	-0.04	-0.04
SCAQMD Regional Threshold	55	55	550	150	150	55
<b>Threshold Exceeded?</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Winter Scenario</b>						
Area Source	35.19	20.17	103.39	0.13	2.07	2.07
Energy Source	0.86	7.65	5.05	0.05	0.60	0.60
Mobile Source	40.17	70.98	278.52	0.73	73.60	20.13
<b>Total Project Daily Emissions</b>	<b>76.23</b>	<b>98.80</b>	<b>386.96</b>	<b>0.90</b>	<b>76.26</b>	<b>22.80</b>
<b>Existing Emissions</b>	<b>10.90</b>	<b>146.09</b>	<b>39.59</b>	<b>0.45</b>	<b>18.74</b>	<b>6.61</b>
<b>Net Emissions (Project – Existing)</b>	65.33	-0.52	-0.42	0.00	-0.04	-0.04
SCAQMD Regional Threshold	55	55	550	150	150	55
<b>Threshold Exceeded?</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: Urban Crossroads, 2019.

### IMPACT AQ-3: THE PROJECT WOULD NOT EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS.

#### Localized Construction Emissions

**Less than Significant Impact.** As described previously, the daily construction emissions generated onsite by the proposed Project are evaluated against SCAQMD's LSTs to determine whether the emissions would cause or contribute to adverse localized air quality impacts. The closest sensitive receptor to the Project is 13 meters northwest of the Project site. The SCAQMD LST Methodology states that Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters. Therefore, the LSTs for a receptor distance of 25 meters (82 feet) is used to evaluate LST emissions. Table 5.2-9 identifies daily localized onsite emissions that are estimated to occur during construction of the proposed Project. As shown, emissions during the peak construction activity would not exceed any of the SCAQMD's localized significance thresholds. Therefore, LST impacts would be less than significant.

**Table 5.2-9: Summary of Localized Construction Emissions**

	Emissions (lbs/day)			
	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>On-Site Demolition Emissions</b>				
Maximum Daily Emissions	33.20	21.75	5.19	2.08
SCAQMD Localized Threshold	81	485	141	74
<b>Threshold Exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>On-Site Site Preparation Emissions</b>				
Maximum Daily Emissions	63.79	22.39	11.28	6.59
SCAQMD Localized Threshold	149	984	160	88
<b>Threshold Exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

On-Site Grading Emissions				
Maximum Daily Emissions	60.88	32.40	6.47	3.74
SCAQMD Localized Threshold	160	1,079	163	91
<b>Threshold Exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: Urban Crossroads, 2019.

### CO Hotspots

**Less than Significant.** An adverse CO concentration, known as a “hot spot”, would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. In 2003, the SCAQMD estimated that a Project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a CO hot spot.

As shown on Table 5.2-10, the highest trips on a segment of road with the Project traffic is 9,378 vehicles per hour on Jamboree Road and Barranca Parkway. This is much lower than 44,000 vehicles per hour and is not high enough to generate a CO “hot spot” per SCAQMD. Therefore, impacts related to CO “hot spots” from operation of the proposed Project would be less than significant.

**Table 5.2-10: Opening Year with Project Traffic Volumes**

Intersection Location	Peak Traffic Volumes (vehicles per hour)				Total (AM/PM)
	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	
MacArthur Boulevard/ Main Street	3,008/2,744	1,150/1,217	1,421/1,523	881/1,703	6,460/7,187
Jamboree Road/ Barranca Parkway	1,229/3,754	5,243/2,105	910/2,101	932/1,418	8,314/9,378
Jamboree Road/ Alton Parkway	1,536/3,813	3,589/1,776	460/1,359	942/822	6,527/7,770
Jamboree Road/ Main Street	2,266/3,587	3,369/2,154	680/2,109	1,336/1,247	7,651/9,097

Source: Urban Crossroads, 2019.

### **IMPACT AQ-4: THE PROJECT WOULD NOT RESULT IN OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS) ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE.**

**Less Than Significant Impact.** The proposed Project would not emit other emissions, such as those generating objectionable odors, that would affect a substantial number of people. The threshold for odor is identified by SCAQMD Rule 402, Nuisance, which states:

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

The type of facilities that are considered to result in other emissions, such as objectionable odors, include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass

manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities.

The proposed Project would implement retail and restaurant commercial and residential development within the Project area. These land uses do not involve the types of uses that would emit objectionable odors affecting a substantial number of people. In addition, odors generated by non-residential land uses are required to be in compliance with SCAQMD Rule 402, which would prevent nuisance odors.

During construction, emissions from construction equipment, architectural coatings, and paving activities may generate odors. However, these odors would be temporary, intermittent in nature, and would not affect a substantial number of people. The noxious odors would be confined to the immediate vicinity of the construction equipment. Also, the short-term construction-related odors would cease upon the drying or hardening of the odor-producing materials.

In addition, all Project-generated solid waste would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations and would not generate objectionable odors. Therefore, impacts associated with other operation- and construction-generated emissions, such as odors, would be less than significant.

## 5.2.7 CUMULATIVE IMPACTS

As described previously, per SCAQMD's methodology, if an individual project would result in air emissions of criteria pollutants that exceeds the SCAQMD's thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants. As shown previously in Table 5.2-8, implementation of the proposed Project would result in exceedance of the threshold for VOCs. The majority of VOC emissions would be derived from consumer products and mobile activity, the emissions of which cannot be controlled by the City and there are no feasible mitigation measures that would reduce VOC emissions to below the SCAQMD threshold. Therefore, impacts related to a cumulatively considerable net increase of a criteria pollutant for which the Project region is non-attainment would be significant and unavoidable.

## 5.2.2 EXISTING STANDARD CONDITIONS AND PLANS, PROGRAMS, OR POLICIES

### Plans, Program and Policies

The following Plans, Programs, and Policies (PPP) related to hydrology and water quality are incorporated into the Project and would reduce impacts related to hazards and hazardous materials. These actions will be included in the Project's mitigation monitoring and reporting program (MMRP):

**PPP AQ-1: Rule 403.** The following measures shall be incorporated into construction plans and specifications as implementation of Rule 403:

- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.

- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less.

**PPP AQ-2: Rule 1113.** The following measure shall be incorporated into construction plans and specifications as implementation of Rule 1113. The Project shall only use “Low-Volatile Organic Compounds (VOC)” paints (no more than 50 gram/liter of VOC) consistent with SCAQMD Rule 1113.

**PPP AQ-3: Rule 445.** The following measure shall be incorporated into construction plans and specifications as implementation of Rule 445. Wood burning stoves and fireplaces shall not be included or used in the new development.

### 5.8.3 LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Impacts AQ-1 and AQ-2 would be **potentially significant**.

Upon implementation of regulatory requirements Impacts AQ-3 and AQ-4 would be less than significant.

### 5.2.9 MITIGATION MEASURES

Emissions from operation of the proposed Project would exceed SCAQMD’s threshold for VOCs. Because the majority of VOC emissions would be derived from consumer products and mobile activity that neither the Project applicant nor the City have the ability to reduce emissions of. There are no feasible mitigation measures to reduce VOC emissions. Therefore, operational-source VOC emissions from implementation of the proposed Project would be cumulatively considerable, and cumulative air quality impacts would be significant and unavoidable.

### 5.2.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The operational impacts related to VOC emissions cannot be mitigated to a less-than-significant level. Therefore, impacts related to conflict with an air quality plan and a cumulatively considerable net increase of a criteria pollutant would be significant and unavoidable.

## REFERENCES

Air Quality Impact Analysis. Prepared by Urban Crossroads (AQ 2019)