5.5 AIR QUALITY

This section describes the existing air quality setting in the vicinity of the project area, the regulatory framework necessary to evaluate potential environmental impacts resulting from the proposed project, and the potential impacts that could result from the project. Where necessary, this section identifies mitigation measures that would avoid or reduce the project's potentially significant air quality impacts. The methodologies and assumptions used in the preparation of this section follow the CEQA Guidelines developed by the South Coast Air Quality Management District (SCAQMD; SCAQMD 2017a). Information on existing air quality conditions, Federal and State ambient air quality standards, and pollutants of concern was obtained from the U.S. Environmental Protection Agency (U.S. EPA), California Air Resources Board (CARB), and SCAQMD. This air quality analysis has been closely coordinated with the greenhouse gas (GHG) analysis in Section 5.6 of this EIR. This analysis is based upon an *Air Quality and GHG Impact Analysis* report prepared for the project, as well as a *Health Risk Assessment Report,* which are contained in Appendix E, Air Quality/Greenhouse Gas Data, and Appendix E, Health Risk Assessment (MIG 2019a; MIG 2019b).

5.5.1 REGULATORY SETTING

FEDERAL

Federal Clean Air Act

The Federal Clean Air Act (CAA), as amended, provides the overarching basis for both Federal and State air pollution prevention, control, and regulation. The CAA establishes the U.S. EPA's responsibilities for protecting and improving the nation's air quality. The U.S. EPA oversees Federal programs for setting air quality standards and designating attainment status, permitting new and modified stationary sources of pollutants, controlling emissions of hazardous air pollutants, and reducing emissions from motor vehicles and other mobile sources. In 1971, to achieve the purposes of Section 109 of the CAA, the U.S. EPA developed primary and secondary National Ambient Air Quality Standards (NAAQS). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and public welfare from air pollutants in the atmosphere.

The U.S. EPA requires each State to prepare and submit a State Implementation Plan (SIP) that consists of background information, rules, technical documentation, and agreements that an individual State will use to attain compliance with the NAAQS within federally imposed deadlines. State and local agencies implement the plans and rules associated with the SIP, but the rules are also federally enforceable.

STATE

California Clean Air Act

In addition to being subject to Federal requirements, air quality in the State is governed by more stringent regulations under the California Clean Air Act, which was enacted in 1988 to develop plans and strategies for attaining the California Ambient Air Quality Standards (CAAQS).

In California, both the Federal and State clean air acts are administered by the California Air Resources Board (CARB). CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional level.

In-Use Off-Road Diesel Equipment Program

CARB's In-Use Off-Road Diesel Equipment regulation is intended to reduce emissions of nitrous oxides (NO_x) and particulate matter (PM) from off-road diesel vehicles, including construction equipment, operating within California. The regulation imposes limits on idling; requires reporting equipment and engine information and labeling all vehicles reported; restricts adding older vehicles to fleets; and requires fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing exhaust retrofits for PM. The requirements and compliance dates of the off-road regulation vary by fleet size, and large fleets (fleets with more than 5,000 horsepower) must meet average targets or comply with Best Available Control Technology (BACT) requirements beginning in 2014. CARB has off-road anti-idling regulations affecting self-propelled diesel-fueled vehicles of 25 horsepower and up. The off-road anti-idling regulations limit idling on applicable equipment to no more than five minutes, unless exempted due to safety, operation, or maintenance requirements.

On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation

CARB's On-Road Heavy-Duty Diesel Vehicles (In-Use) regulation (also known as the Truck and Bus Regulation) is intended to reduce emission of NO_X, PM, and other criteria pollutants generated from existing on-road diesel vehicles operating in California. The regulation applies to nearly all diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds that are privately or federally owned, and for privately and publicly owned school buses. Heavier trucks and buses with a GVWR greater than 26,000 pounds must comply with a schedule by engine model year or owners can report to show compliance with more flexible options. Fleets complying with the heavier trucks and buses schedule must install the best available PM filter on 1996 model year and newer engines and replace the vehicle 8 years later. Trucks with 1995 model year and older engines had to be replaced starting in 2015. Replacements with a 2010 model year or newer engine meet the final requirements, but owners can also replace the equipment with used trucks that have a future compliance date (as specified in regulation). By 2023, all trucks and buses must have at least 2010 model year engines with few exceptions.

Stationary Diesel Engines – Emissions Regulations

In 1998, CARB identified Diesel Particulate Matter (DPM) as a Toxic Air Contaminant (TAC). To reduce public exposure to DPM, in 2000, CARB approved the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (Risk Reduction Plan) (CARB 2000). Integral to this plan is the implementation of control measures to reduce DPM such as the control measures for stationary diesel-fueled engines. As such, diesel generators must comply with regulations under CARB's amendments *to Airborne Toxic Control Measure for Stationary Compression Ignition Engines* and be permitted by the SCAQMD.

Air Quality and Land Use Handbook

In 1998, CARB identified particulate matter from diesel-fueled engines as a TAC. CARB's *Air Quality and Land Use Handbook* is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process (CARB 2005). The CARB handbook recommends that planning agencies consider proximity to air pollution sources when considering new locations for "sensitive" land uses, such as residences, medical facilities, daycare centers, schools, and playgrounds. Air pollution sources of concern include freeways, rail yards, ports, refineries, distribution centers, chrome plating facilities, dry cleaners, and large gasoline service stations. Key recommendations in the handbook relative to the project area include taking steps to consider or avoid siting new, sensitive land uses:

- Within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day
- Within 300 feet for gasoline fueling stations
- Within 300 feet of dry-cleaning operations (dry-cleaning with TACs is being phased out and will be prohibited in 2023). The SCAQMD (Regulation 14, Rule 21) has established emission controls for the use of perchloroethylene, the most common dry-cleaning solvent.

CARB prepared a technical supplement to the handbook, a *Technical Advisory on Strategies to Reduce Air Pollution Exposure Near High Volume Roadways* (CARB 2017), that provides recommendations for strategies to minimize exposure of the public to air pollutants due to proximity to high volume roadways, such as reducing traffic emissions and removing pollution from the air.

Air Toxics "Hot Spots" Program

"Air toxics" are a special class of air pollutants especially harmful to human health, and they include carbon monoxide (CO) and TACs. State requirements specifically address emissions of air toxics through Assembly Bill (AB) 1807 (known as the Tanner Bill) that established the State Air Toxics "Hot Spots" Program and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588) (California Health and Safety Code Section 44300 et seq.). Under the Air Toxics Hot Spots Information and Assessment Act of 1987 (or Air Toxics "Hot Spots" Act) and Air Toxics Hot Spots Program, the State (CARB) must collect data on toxic emissions from stationary sources (facilities) throughout the State and ascertain potential health risks that these emissions pose to members of community for developing cancer or for resulting in non-cancer health effects. California's Children's Environmental Health Protection Act of 1999 (California Health and Safety Code Section 39606), also requires explicit consideration of infants and children in assessing risks from air toxics.

Substances regulated under California's Air Toxics Hot Spots Program are defined in statute and include a list of substances developed by the following sources:

- International Agency for Research on Cancer (IARC)
- U.S. EPA
- U.S. National Toxicology Program (NTP)
- CARB Toxic Air Contaminant Identification Program List
- Hazard Evaluation System and Information Service (HESIS) (State of California)

- Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986) list of carcinogens and reproductive toxicants (State of California)
- Any additional substance recognized by the State Board as presenting a chronic or acute threat to public health when present in the ambient air

On May 6, 2005, the SCAQMD adopted a *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning* containing numerous recommendations focused on land use planning, such as locating sensitive receptors away from substantial sources of TACs and CO hot spots (e.g., high-traffic freeways and roads, distribution centers, refineries, etc.). When locating receptors near large generators of TAC emissions, the SCAQMD recommends conducting CO hot spot analyses and analyzing health risk for these new developments.

California's Office of Environmental Health Hazard Assessment (OEHHA) has developed procedures for performing "Health Risk Assessments" (HRA) to evaluate the "likelihood" of emissions of TACs to cause cancer or non-cancer effects (OEHHA 2015). An HRA can also be used to evaluate the impacts of TAC emissions of individual projects on the public, including the likelihood to cause cancer or non-cancer effects. Often these risks are evaluated for sensitive receptors (i.e., residents, including children), as these are the members of the public most sensitive to exposure to TACs.

OEHHA has striven to use the best science available in developing these risk assessment guidelines. However, there is a great deal of uncertainty associated with the process of risk assessment (OEHHA 2015). The uncertainty arises from lack of data in many areas necessitating the use of assumptions. The assumptions used in the guidelines are designed to err on the side of health protection to avoid underestimation of risk to the public (OEHHA 2015).

REGIONAL

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is a joint powers authority under California law, established as an association of local governments and agencies that voluntarily convene as a forum to address regional issues. SCAG encompasses the counties of Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial.

SCAG is designated as a Metropolitan Planning Organization (MPO) and as a Regional Transportation Planning Agency. Under Senate Bill (SB) 375, SCAG, as a designated MPO, is required to prepare a Sustainable Communities Strategy (SCS) as an integral part of its Regional Transportation Plan (RTP). On April 7, 2016, SCAG's Regional Council adopted the *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (2016 RTP/SCS). The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. Information contained in Chapter 5: The Road to Greater Mobility and Sustainable Growth of the 2016 RTP/SCS forms the basis for the land use and transportation components of the *Air Quality Management Plan* (AQMP), and are utilized in the preparation of air quality forecasts and consistency analysis included in the AQMP.

SCAQMD Air Quality Management Plan

Under State law, SCAQMD is required to prepare an overall plan for air quality improvement, known as an AQMP. The purposed of an AQMP is to bring an air basin into compliance with Federal and State air quality standards. The SCAQMD 2016 AQMP was adopted on March 3, 2017 (SCAQMD 2017b). The 2016 AQMP provides new and revised demonstration's for how the SCAQMD, in coordination with Federal, State, regional, and local governments will bring the South Coast Air Basin (SCAB) back into attainment for the following NAAQS:

- 2008 8-hour Ozone
- 2012 Annual PM2.5
- 2006 24-hour PM2.5[1]
- 1997 8-hour Ozone
- 1997 1-hour Ozone

To achieve the reductions necessary to bring ambient air quality back into attainment, the SCAQMD has identified seven primary objectives for the AQMP:

1. Eliminating reliance on unknown future technology measures to demonstrate future attainment of air quality standards
2. Calculating and accounting for co-benefits associated with measures identified in other, approved planning efforts (e.g., SCAG's RTP/SCS)
3. Developing a strategy with fair-share emission reductions at the Federal, State, and local levels
4. Investing in strategies and technologies that meet multiple objectives regarding air quality, climate change, air toxic exposure, energy, and transportation – especially in disadvantaged communities
5. Seeking, identifying, and securing significant sources of funding for incentives to implement early deployment and commercialization of zero and near-zero technologies, particularly in the mobile source sector
6. Enhancing the socioeconomic analysis and selecting the most efficient and cost-effective path to achieve multi-pollutant and deadline targets
7. Prioritize non-regulatory, innovative approaches that can contribute to the economic vitality of the regional while maximizing emission reductions

The emission forecasts and demonstrations presented in the 2016 AMQP rely heavily on information contained in other planning and strategy documents. For example, the 2016 AQMP's long-term emissions inventory is based on the growth and land use(s) projections contained in the SCAG's 2016 RTP/SCS. Additionally, the conclusions relating to ozone compliance are based on implementation of measures presented in CARB's Mobile Source Strategy and SIP strategy. The Mobile Source Strategy outlines a suite of measures targeted at on-road light- and heavy-duty vehicles, off-road equipment, and Federal and international sources. A subset of the statewide strategy is a mobile source strategy for the South Coast SIP. Because the SCAQMD has limited authority in regulating mobile source emissions, coordination and cooperation between SCAQMD, CARB, and the U.S. EPA is imperative to meeting the oxides of nitrogen (NOx) reductions required to meet ozone standards. Although not

1 Although the 2006 24-hour $PM_{2.5}$ standard was focused on in the 2012 AQMP, it has since been determined, primarily due to unexpected drought conditions, that it is impractical to meet the standard by the original attainment year. Since adoption of the 2012 AQMP, the U.S. EPA approved a re-classification to "serious" non-attainment for the standard, which requires a new attainment demonstration and deadline.

incorporated specifically from another planning document strategy, the 2016 AQMP also provides numerous control measures for stationary sources.

SCAQMD Rules and Regulations

The SCAQMD adopts rules that establish permissible air pollutant emissions and governs a variety of business, processes, operations, and products to implement the AQMP and the various Federal and State air quality requirements. In general, rules anticipated to be applicable during buildout of the proposed project include:

- **Rule 401 (Visible Emissions)** prohibits discharge into the atmosphere from any single source of emission for any contaminant for a period or periods aggregating more than three minutes in any one hour that is as dark or darker in shade than that designated as No. 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.
- **Rule 402 (Nuisance)** prohibits discharges of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
- **Rule 403 (Fugitive Dust)** prohibits emissions of fugitive dust from any grading activity, storage pile, or other disturbed surface area if it crosses the project property line or if emissions caused by vehicle movement cause substantial impairment of visibility (defined as exceeding 20 percent capacity in the air). Rule 403 requires the implementation of Best Available Control Measures and includes additional provisions for projects disturbing more than five acres and those disturbing more than fifty acres.
- **Rule 445 (Wood Burning Devices)** prohibits installation of woodburning devices such as fireplaces and wood-burning stoves in new development unless the development is located at an elevation above 3,000 feet or if existing infrastructure for natural gas service is not available within 150-feet of the development. All fireplaces installed within the Proposed Project area will be natural gas fueled fireplaces.
- **Rule 481 (Spray Coating Operations)** imposes equipment and operational restrictions during construction for all spray painting and spray coating operations.
- **Rule 1108 (Cutback Asphalt)** prohibits the sale or use of any cutback asphalt containing more than 0.5 percent by volume organic compounds which evaporate at 260 degrees Celsius (°C), approximately 500 degrees Fahrenheit (°F), or lower.
- **Rule 1113 (Architectural Coatings)** establishes maximum concentrations of Volatile Organic Compounds (VOCs) in paints and other applications and establishes the thresholds for low-VOC coatings.
- **Rule 1143 (Consumer Paint Thinners and Multi-Purpose Solvents)** prohibits the supply, sale, manufacture, blend, package or repackage of any consumer paint thinner or multi-purpose solvent for use in the District unless consumer paint thinners or other multi-purpose solvents comply with applicable VOC content limits.
- **Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities)** specifies work practice requirements to limit asbestos emissions from building demolitions and renovation activities, including the removal and associated disturbance of asbestos containing materials. The requirements for demolition and renovation activities include asbestos surveying, notification, asbestos containing materials removal procedures and time schedules, asbestos containing materials handling and clean-up procedures, and storage, disposal, and land filling requirements for asbestos containing waste materials.
- **Rule 2202 (On-Road Motor Vehicle Mitigation Options)** provides employers with options to reduce mobile source emissions generated from employee commutes. The

rule applies to any employer who employs 250 or more employees on a full- or part-time basis at a worksite or a consecutive six-month period.

LOCAL

City of Duarte General Plan

The City's General Plan Open Space and Conservation Element establishes the following goals, objectives, and policies related to air quality that may be applicable to the proposed project:

Air Quality Goal 1: Create Land Use policies that address the relationship between land use and air quality to protect public health and minimize impacts on existing land use patterns and future land use developments.

Objective 1.1: Through land use plans provide heightened consideration of policies and strategies to minimize exposure of sensitive receptors and sites (e.g., schools, hospitals, and residences) to health risks related to air pollution.

Policy AQ 1.1.2: Promote and support mixed-use land patterns that allow the integration of retail, office, institutional and residential uses.

Objective 1.2: Reduce mobile source emissions by reducing vehicle trips and vehicle miles traveled associated with land use patterns.

Policy AQ 1.2.2: Create opportunities to receive State transportation funds by adopting incentives (e.g., an expedited review process) for planning and implementation infill development projects that include job centers and clean transportation nodes (e.g., preparation of a "transit village" plan).

Air Quality Goal 3: Achieve ambient levels of particulate matter that meet state and federal clean air standards.

Objective 3.1: Reduce the amount of fugitive dust that is re-entrained into the atmosphere from unpaved areas, parking lots, construction sites and nearby quarries.

Policy AQ 3.1.2: Cooperate with local, regional, state, and federal jurisdictions to better control fugitive dust from stationary, mobile, and area sources

Policy AQ 3.1.3: Ensure that vehicles do not transport aggregate or similar material upon a highway unless the material is stabilized or covered, in accordance with state law and AQMD regulations.

5.5.2 ENVIRONMENTAL SETTING

REGULATED AIR POLLUTANTS

The U.S. EPA has established NAAQS for six common air pollutants:

- Ozone (O_3)
- PM, which consists of "inhalable coarse" PM (particles with an aerodynamic diameter between 2.5 and 10 microns, or PM_{10}) and "fine" PM (particles with an aerodynamic diameter smaller than 2.5 microns, or $PM_{2.5}$)
- Carbon monoxide (CO)
- Nitrogen dioxide (NO_2)

- Sulfur dioxide (SO_2)
- Lead (Pb)

The U.S. EPA refers to these six common pollutants as "criteria" pollutants because the agency regulates the pollutants on the basis of human health and/or environmentally-based criteria because they are known to cause adverse human health effects and/or adverse effects on the environment (U.S. EPA 2019a, b). CARB has also established CAAQS for the six common air pollutants regulated by the CAA (the CAAQS are more stringent than the NAAQS), plus the following additional air pollutants:

- Hydrogen sulfide (H_2S)
- Sulfur oxides (SO_X)
- Vinyl chloride
- Visibility reducing particles due to their known adverse effects on human health or the environment (CARB 2019a)

A description of the air pollutants associated with the proposed project and its vicinity is provided below. Air pollutants not commonly associated with the existing or proposed sources in the vicinity of the project site, such as hydrogen sulfide, lead, and visibility reducing particles, are not described below.

- Ground-level ozone**, or smog,** is not emitted directly into the atmosphere. It is created from chemical reactions between NO_X and VOCs, also called Reactive Organic Gases (ROG), in the presence of sunlight (U.S. EPA 2017). Thus, ozone formation is typically highest on hot sunny days in urban areas with NO_X and ROG pollution. Ozone irritates the nose, throat, and air pathways and can cause or aggravate shortness of breath, coughing, asthma attacks, and lung diseases such as emphysema and bronchitis.
  - **ROGs** is a CARB term defined as any compound of carbon, excluding CO, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, and includes several low-reactive organic compounds which have been exempted by the U.S. EPA VOC definition (CARB 2004).
  - **VOCs** is a U.S. EPA term defined as any compound of carbon, excluding CO, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. The term exempts organic compounds of carbon which have been determined to have negligible photochemical reactivity such as methane, ethane, and methylene chloride (CARB 2004).
- **Particulate Matter**, also known as particle pollution, is a mixture of extremely small solid and liquid particles made up of a variety of components such as organic chemicals, metals, and soil and dust particles (U.S. EPA 2016a).
  - **PM_{10}**, also known as inhalable coarse, respirable, or suspended PM_{10}, consists of particles less than or equal to 10 micrometers in diameter (approximately $1/7^{th}$ the thickness of a human hair). These particles can be inhaled deep into the lungs and possibly enter the blood stream, causing health effects that include, but are not limited to, increased respiratory symptoms (e.g., irritation, coughing), decreased lung capacity, aggravated asthma, irregular heartbeats, heart attacks, and premature death in people with heart or lung disease (U.S. EPA 2016a).
  - **$PM_{2.5}$**, also known as fine PM, consists of particles less than or equal to 2.5 micrometers in diameter (approximately $1/30^{th}$ the thickness of a human hair). These particles pose an increased risk because they can penetrate the deepest

parts of the lung, leading to and exacerbating heart and lung health effects (U.S. EPA 2016a).

- **Carbon Monoxide (CO)** is an odorless, colorless gas that is formed by the incomplete combustion of fuels. At high concentrations, CO reduces the oxygen-carrying capacity of the blood and can aggravate cardiovascular disease and cause headaches, dizziness, unconsciousness, and even death (U.S. EPA 2016b).
- **Nitrogen Dioxide (NO_2)** is a by-product of combustion. NO_2 is not directly emitted but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to ozone formation. NO_2 also contributes to the formation of particulate matter. NO_2 can cause breathing difficulties at high concentrations (U.S. EPA 2016c).
- **Sulfur Dioxide (SO_2)** is one of a group of highly reactive gases known as SO_X. Fossil fuel combustion in power plants and industrial facilities are the largest emitters of SO_2. Short-term effects of SO_2 exposure can include adverse respiratory effects such as asthma symptoms. SO_2 and other SO_X can react to form PM (U.S. EPA 2016d).
- **Sulfates (SO_4^{2-})** are the fully oxidized ionic form of sulfur. SO_4^{2-} are primarily produced from fuel combustion. Sulfur compounds in the fuel are oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. Sulfate exposure can increase risks of respiratory disease (CARB 2009).

Common criteria air pollutants such as ozone precursors, SO_2, and PM are emitted by a large number of sources and have effects on a regional basis (i.e., throughout the SCAB). Other pollutants, such as hazardous air pollutants (HAPs), TACs (described in more detail below), and fugitive dust, are generally not as prevalent and/or emitted by fewer and more specific sources. As such, these pollutants have much greater effects on local air quality conditions and local receptors.

HAZARDOUS AIR POLLUTANTS/TOXIC AIR CONTAMINANTS

In addition to criteria air pollutants, the U.S. EPA and CARB have classified certain pollutants as HAPs and TACs, respectively. These pollutants can cause severe health effects at very low concentrations (non-cancer effects), and many are suspected or confirmed carcinogens (i.e., can cause cancer) (U.S. EPA 2019b, CARB 2019b). People exposed to HAPs/TACs at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects (U.S. EPA 2019b, CARB 2019b). These health effects can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and/or other health problems (U.S. EPA 2019b, CARB 2019b).

The U.S. EPA has identified 187 HAPs, including such substances as benzene and formaldehyde; CARB also considers particulate emissions from diesel-fueled engines and other substances to be TACs. Since CARB's list of TACs references and includes U.S. EPA's list of HAPs, this EIR uses the term TAC when referring to HAPs and TACs. A description of the TACs associated with the proposed project and its vicinity is provided below.

- **Gasoline-Powered Mobile Sources**. According to the SCAQMD's *Multiple Air Toxics Exposure Study in the South Coast Air Basin* (SCAQMD 2015a), or MATES IV, gasoline-powered vehicles emit TACs, such as benzene, which can have adverse health risks. Gasoline-powered sources emit TACs in much smaller amounts than diesel-powered vehicles. The MATES IV study identifies that diesel emissions account for between 68% to 80% of the total air toxics and cancer risk in the South Coast Air Basin.

- **Diesel Particulate Matter (DPM)**. Diesel engines emit both gaseous and solid material; the solid material is known as DPM. Almost all DPM is less than 1 μm in diameter, and thus is a subset of $PM_{2.5}$. DPM is typically composed of carbon particles and numerous organic compounds. Diesel exhaust also contains gaseous pollutants, including VOCs and NO_x. The primary sources of diesel emissions are ships, trains, trucks, rail yards and heavily traveled roadways. These sources are often located near highly populated areas, resulting in greater DPM related health consequences in urban areas. The majority of DPM is small enough to be inhaled into the lungs and what particles are not exhaled can be deposited on the lung surface and in the deepest regions of the lungs where the lung is most susceptible to injury. In 1998, CARB identified DPM as a TAC based on evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure (CARB 2019c).

- **PM from Wheel-Rail Interaction**. PM may also be generated from friction between rail and locomotive wheels (wheel-rail interaction). This abrasion process can suspend metals such as iron, chromium, manganese, and copper in the form of PM (CARB 2019c, Loxham et al. 2013); however, the potential for PM to be generated is dependent on the weight of the train and the conditions of the wheels and track on which the train rides. The Metro Gold Line is commuter rail that consists of an Electric Multiple Unit locomotive system that is lighter than traditional diesel locomotive commuter and freight trains, and in new condition. Thus, while the Metro Gold Line may generate PM from wheel-rail interaction, this contribution is anticipated be minimal (i.e., would not have an appreciable effect on mass emission or health risk estimates); thus, this issue is not discussed further in this EIR.

SOUTH COAST AIR BASIN

CARB has geographically divided the State into 15 air basins for the purposes of managing air quality on a regional basis. An air basin is a CARB-designated management unit with similar meteorological and geographic conditions.

The City of Duarte is located in the SCAB, which includes Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside counties. The SCAB encompasses approximately 6,745 square miles of coastal plains and is bounded by the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east.

Basin Climate and Meteorology

The climate of the Los Angeles region is classified as Mediterranean, but weather conditions within the SCAB are dependent on local topography and proximity to the Pacific Ocean. The climate is dominated by the Pacific high-pressure system that results in generally mild, dry summers and mild, wet winters. This temperate climate is occasionally interrupted by extremely hot temperatures during the summer, Santa Ana winds during the fall, and storms from the Pacific Northwest during the winter. In addition to the SCAB's topography and geographic location, El Niño and La Niña patterns also have large effects on weather and rainfall received between November and March.

The Pacific high-pressure system drives the prevailing winds in the SCAB. The winds tend to blow onshore in the daytime and offshore at night. In the summer, an inversion layer is created over the coastal areas and increases ozone levels. A temperature inversion is created when a layer of cool air is overlain by a layer of warmer air; this can occur over coastal areas when cool, dense air that originates over the ocean is blown onto land and flows underneath the warmer, drier air that is present over land. In the winter, areas throughout the SCAB often experience a shallow inversion layer that prevents the dispersion of surface level air pollutants, resulting in higher concentrations of criteria air pollutants such as CO and NO_X.

In the fall months, the SCAB is often impacted by Santa Ana winds. These winds are the result of a high-pressure system over the Nevada-Utah region that overcomes the westerly wind pattern and forces hot, dry winds from the east to the Pacific Ocean. These winds are powerful and incessant. A strong Santa Ana wind can easily exacerbate fire conditions, resulting in worsening air quality throughout the SCAB, as smoke and ash are pushed into the region.

An El Niño is a warming of the surface waters of the eastern Pacific Ocean. It is a climate pattern that occurs across the tropical Pacific Ocean that is usually associated with drastic weather occurrences, including enhanced rainfall in Southern California. La Niña is a term for cooler than normal sea surface temperatures across the Eastern Pacific Ocean. The Los Angeles region receives less than normal rainfall during La Niña years.

Moderate temperatures, comfortable humidity, and limited precipitation characterize the climate in the SCAB. The average annual temperature varies little throughout the Basin, averaging 75°F. However, with a less pronounced oceanic influence, the eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures.

Almost all areas within the SCAB have recorded temperatures over 100°F in recent years. Although the SCAB has a semiarid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the SCAB by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as “high fog,” are a characteristic climate feature. Annual average relative humidity is 70% at the coast and 57% in the eastern part of the Basin. Precipitation is typically 9 to 14 inches annually and is rarely in the form of snow or hail because of typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the SCAB.

Based on historical data from a meteorological station in an adjacent jurisdiction, the City of Duarte’s average temperatures generally range from a high of 91.9°F in August to a low of 39.6°F in December. Annual precipitation is approximately 18.96 inches, falling mostly from November through April (WRCC 2019).

Ambient Air Quality Standards and Basin Attainment Status

In general, the NAAQS and CAAQS define “clean” air, which is established at levels designed to protect the health of the most sensitive groups in communities by defining the maximum amount of a pollutant (averaged over a specified period of time) that can be present in outdoor air without any harmful effects on people or the environment. Air pollutant levels are typically described in terms of concentration, which refers to the amount of pollutant material per volumetric unit of air. Concentrations are typically measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$).

The U.S. EPA, CARB, and regional air agencies assess the air quality of an area by measuring and monitoring the amount of pollutants in the ambient air and comparing pollutant levels against NAAQS and CAAQS. Based on these comparisons, regions are classified into one of the following categories:

- **Attainment.** A region is "in attainment" if monitoring shows ambient concentrations of a specific pollutant are less than or equal to the NAAQS or CAAQS. In addition, an area that has been re-designated from nonattainment to attainment is classified as a "maintenance area" for 10 years to ensure that the air quality improvements are sustained.

- **Nonattainment**. If the NAAQS or CAAQS are exceeded for a pollutant, the region is designated as nonattainment for that pollutant. It is important to note that some NAAQS and CAAQS require multiple exceedances of the standard in order for a region to be classified as nonattainment. Federal and State Laws require nonattainment areas to develop strategies, implementation plans, and control measures to reduce pollutant concentrations to levels that meet, or attain, standards.

- **Unclassified.** An area is unclassified if the ambient air monitoring data are incomplete and do not support a designation of attainment or nonattainment.

Table 5.5-1, Ambient Air Quality Standards and Basin Attainment Status summarizes SCAB's attainment status.

Table: 5.5-1
Ambient Air Quality Standards and Basin Attainment Status

Pollutant	Averaging Time(B)	California Standards(A)		National Standards(A)	
		Standard(C)	Attainment Status(D)	Standard(C)	Attainment Status(D)
Ozone	1-Hour (1979)	--	--	240 μg/m³	Nonattainment
	1-Hour (Current)	180 μg/m³	Nonattainment	--	--
	8-Hour (1997)	--	--	160 μg/m³	Nonattainment
	8-Hour (2008)	--	--	147 μg/m³	Nonattainment
	8-Hour (Current)	137 μg/m³	Nonattainment	137 μg/m³	Pending
PM_{10}	24-Hour	50 μg/m³	Nonattainment	150 μg/m³	Attainment
	Annual Average	20 μg/m³	Nonattainment	--	--
$PM_{2.5}$	24-Hour	--	--	35 μg/m³	Nonattainment
	Annual Average (1997)	--	--	15 μg/m³	Nonattainment
	Annual Average (Current)	12 μg/m³	Nonattainment	12 μg/m³	Nonattainment
Carbon Monoxide	1-Hour	23,000 μg/m³	Attainment	40,000 μg/m³	Attainment
	8-Hour	10,000 μg/m³	Attainment	10,000 μg/m³	Attainment
Nitrogen Dioxide	1-Hour	339 μg/m³	Attainment	188 μg/m³	Unclassifiable/ Attainment
	Annual Average	57 μg/m³	Attainment	100 μg/m³	Attainment

Table: 5.5-1
Ambient Air Quality Standards and Basin Attainment Status

Pollutant	Averaging Time[B]	California Standards[A]		National Standards[A]	
		Standard[C]	Attainment Status[D]	Standard[C]	Attainment Status[D]
Sulfur Dioxide	1-Hour	655 µg/m³	Attainment	196 µg/m³	Attainment
	24-Hour	105 µg/m³	Attainment	367 µg/m³	Unclassifiable/ Attainment
	Annual Average	--	--	79 µg/m³	Unclassifiable/ Attainment
Lead	3-Months Rolling	--	--	0.15 µg/m³	Nonattainment (Partial)
Hydrogen Sulfide	1-Hour	42 µg/m³	Attainment	--	
Sulfates	24-Hour	25 µg/m³	Attainment	--	
Vinyl Chloride	24-Hour	26 µg/m³	Attainment	--	

Source: CARB 2016, SCAQMD 2016a, modified by MIG.
(A) This table summarizes the CAAQS and NAAQS and the SCAB's attainments status (as of January 2018). This table does not prevent comprehensive information regarding the CAAQS and NAAQS. Each CAAQS and NAAQS has its own averaging time, standard unit of measurement, measurement method, and statistical test for determining if a specific standard has been exceeded. Standards are not presented for visibility reducing particles, which are not concentration-based. The Basin is unclassified for visibility reducing particles.
(B) Ambient air standards have changed over time. This table presents information on the standards previously used by the U.S. EPA for which the SCAB does not meet attainment.
(C) All standards are shown in terms of micrograms per cubic meter (µg/m³) rounded to the nearest whole number for comparison purposes (with the exception of lead, which has a standard less than 1 µg/m³). The actual CAAQS and NAAQS standards specify specific units for each pollutant measurement.
(D) A= Attainment, N= Nonattainment, U=Unclassifiable.

LOCAL AIR QUALITY CONDITIONS

The SCAQMD monitors air quality within the SCAB. Existing levels of ambient air quality and historical trends within the project area are best documented by measurements taken by the SCAQMD. The station closest to Duarte is identified as the East San Gabriel Valley 1 Station (Station #060) by SCAQMD (CARB refers to this station as Azusa). The station is located less than three miles east of Duarte's boundary and monitors CO, O_3, NO_2, PM_{10} and $PM_{2.5}$. This monitoring station represents the best approximation of the air quality conditions within the City.

*Table 5.5-*2, *Local Air Quality Conditions (2015-2017)* summarizes the published monitoring data from East San Gabriel Valley 1 monitoring station from 2015 to 2017, the three most recent years for which verified, published data are available from the SCAQMD (2018 data were not available as of the time of writing of this EIR). Table 5.5-2 shows that air quality standards at this location have been exceeded for $PM_{2.5}$, PM_{10}, and O_3. This is consistent with the entire SCAB's classification as non-attainment for $PM_{2.5}$, PM_{10}, and O_3. As shown in Table 5.5-2:

- The maximum 1-hour and 8-hour CO concentration generally decreased from 2014 to 2016. There were no days in which CO standards were exceeded during this time period.

- The maximum 1-hour NO_2 concentration generally increased from 2014 to 2016, while the average annual NO_2 concentration generally decreased. There were no days in which NO_2 standards were exceeded during this time period.
- The maximum 1-hour and 8-hour O_3 concentration, as well as the number of days exceeding O_3 standards, generally increased from 2014 to 2016.
- The maximum 24-hour and average annual PM_{10} concentration fluctuated during the 2014 to 2016 period but there were no days/years in which the Federal PM_{10} standards were exceeded. The State PM_{10} annual standard was exceeded in 2014, 2015, and 2016; however, the annual average PM_{10} concentration and the number of days exceeding the state 24-hour standard generally decreased over this time period.
- The maximum 24-hour and average annual $PM_{2.5}$ concentration fluctuated during the 2014 to 2016 period but there were no years in which the Federal or State $PM_{2.5}$ annual average standards were exceeded. The Federal 24-hour $PM_{2.5}$ was exceeded once in 2015.

EXISTING PLAN AREA EMISSIONS

As described in Chapter 3.0, Project Description, the existing land uses in the project area consist of three parcels developed with industrial uses totaling approximately 313,955 square feet and a fourth parcel developed as a surface parking lot for the Metro Gold Line station. These existing land uses generate emissions from the following sources:

- **Small "area" sources.** Existing land uses in the project area generate emissions from small area sources including landscaping equipment and the use of consumer products, such as pains, cleaners, and fertilizers, that result in result in the evaporation of chemicals into the atmosphere during product use.
- **Energy use and consumption.** Existing land uses in the project area generate emissions from the combustion of natural gas in water and space heating equipment, as well as industrial processes.
- **Mobile sources.** Existing land uses in the project area generate emissions from vehicles traveling to and from sites.

Existing emissions were estimated using the California Emissions Estimator Model, or CalEEMod, Version 2016.3.2. Existing emissions were estimated using default data assumptions provided by CalEEMod, with the following project-specific modifications:

- The default acreage and square footage for each land use type were adjusted to reflect the actual project area as currently developed.
- The weekday default trip generation rates for the existing land use types were replaced with trip generation rates contained in the *Transportation Impact Study* (TIS) prepared for the proposed project (57.96 trips plus 3.79 trips/day/1,000 square feet for general light industrial land use in a suburban/urban setting) (Fehr & Peers 2019).
- Emissions for criteria air pollutants for existing land uses are summarized in *Table 5.5-3, Existing Emissions in the Project Area*.

Table 5.5-2
Local Air Quality Conditions (2015-2017)

Pollutant	Ambient Air Standard	Year[(A)] 2015	2016	2017
Ozone (O_3)				
Maximum 1-hour Concentration (ppm)		0.122	0.146	0.152
Maximum 8-hr Concentration (ppm)		0.096	0.106	0.114
Number of Days Exceeding State 1-hr Standard	>180 µg/m3	21	30	38
Number of Days Exceeding State 8-hr Standard	>137 µg/m3	28	40	62
Days Exceeding Federal 1-hr Standard	>0.124 ppm	0	4	7
Days Exceeding Federal 8-hr Standard	>0.070 ppm	27	39	62
Carbon Monoxide (CO)				
Maximum 1-hr Concentration (ppm)		2.1	1.3	1.8
Maximum 8-hr Concentration (ppm)		1.3	1.2	0.9
Days Exceeding State 1-hr Standard	>23,000 µg/m^3	--	--	--
Days Exceeding Federal/State 8-hr Standard	>10,000 µg/m^3	--	--	--
Days Exceeding Federal 1-hr Standard	>40,000 µg/m^3	--	--	--
Nitrogen Dioxide (NO_2)				
Maximum 1-hr Concentration (ppb)		71.0	74.2	65.6
Annual Arithmetic Mean Concentration (ppb)		15.4	16.6	15.8
Days Exceeding State 1-hr Standard	>180 µg/m^3	--	--	--
Coarse Particulate Matter (PM_{10})				
Maximum 24-hr Concentration (µg/m^3)		101	74	83
Annual Arithmetic Mean (µg/m^3)		37.1	33.7	31.4
Samples Exceeding State 24-hr Standard	>50 µg/m^3	12	12	6
Samples Exceeding Federal 24-hr Standard	>150 µg/m^3	0	0	0
Fine Particulate Matter ($PM_{2.5}$)				
Maximum 24-hr Concentration (µg/m^3)		44.3	32.17	24.9
Annual Arithmetic Mean (µg/m^3)		9.4	10.15	10.42
Samples Exceeding Federal 24-hr Standard	>35 µg/m^3	1	0	0

Source: SCAQMD 2019a, 2019b, 2019c
(A) "--" indicates data are not available.

Table 5.5-3
Existing Emissions in the Project Area

Emissions Source	Maximum Daily Pollutant Emissions (Pounds Per Day) (A)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	6.6	<0.0(C)	<0.0(C)	0.00	<0.0(C)	<0.0(C)
Energy	0.1	0.9	0.7	<0.0(C)	0.1	0.1
Mobile	3.1	15.2	45.0	0.14	10.7	3.0
Total(B)	***9.8***	***16.1***	***45.8***	***0.15***	***10.8***	***3.0***

Source: MIG 2019a (see Appendix E).
(A) Emissions estimated using CalEEMod, V 2016.3.2. Estimates are based on default model assumptions unless otherwise noted. Maximum daily ROG, CO, and SO_2 emissions occur during the summer. Maximum daily NO_X, PM_{10}, and $PM_{2.5}$ emissions occur during the winter.
(B) Totals may not equal due to rounding.
(C) "<0.0" does not indicate the emissions are less than or equal to 0; rather, it indicates the emission is smaller than 0.1 but larger than 0.00.

SENSITIVE RECEPTORS

Both CARB and the SCAQMD consider residences, schools, parks and playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes to be sensitive air quality land uses and receptors (SCAQMD 2017a; CARB 2005). The potential sensitive air quality receptors adjacent or in close proximity to the perimeter of the project area (i.e., within 1,000 feet) are summarized in *Table 5.5-4*, *Sensitive Receptors*.

Table 5.5-4
Air Quality Sensitive Receptors

Type of Receptor	Location	Distance from Project Site	Direction from Project Site
Residential	Along Business Center Drive, Denning Avenue, and Glenford Avenue	70	North
	Along Orange Grove Road	740	North, across the I-210
	Along Fairdale Avenue and 3 Ranch Road	30	West
School	Northview Intermediate School	700	North
	Duarte High School	700	Northwest
Public Park	Northview Park	700	North
	Pioneer Park	600	Southwest

5.5.3 SIGNIFICANCE THRESHOLD CRITERIA

METHODOLOGY

Construction

Mass daily combustion emissions, fugitive PM_{10} and $PM_{2.5}$, and off-gassing emissions were calculated using the CalEEMod, as recommended by the SCAQMD. CalEEMod separates the construction process into multiple phases, including demolition and site clearing, grading, trenching, paving, building construction, and architectural coating. Construction emissions account for on-site construction equipment emissions, haul truck trips, and worker commute trips. Construction activities were based upon construction scheduling and other preliminary construction details provided by the City. Where appropriate, CalEEMod defaults were utilized. CalEEMod assumptions are provided in Appendix E, Air Quality/Greenhouse Gas Data.

Operations

The CalEEMod software was also used to quantify the daily emissions from mobile and area sources that would occur during long-term operation of the proposed project. Mobile source emissions calculations in CalEEMod were supplemented with traffic trips within the TIS. Area source emissions were quantified using CalEEMod default emissions and exclude emissions from wood burning fireplaces and stoves. The significance threshold in the SCAQMD's *CEQA Air Quality Handbook* were used for evaluating the impacts associated with the implementation of the proposed project. The SCAQMD has established mass daily thresholds for regional pollutant emissions, as shown in *Table 5.5-5*, *SCAQMD Regional Emission Significance Thresholds*.

Table 5.5-5
SCAQMD Regional Emission Significance Thresholds

Air Contaminant	Construction (Maximum Pounds Per Day)	Operation (Maximum Pounds Per Day)
NO_X	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550
Lead	3	3
Source: SCAQMD 2019d.		

Localized Significance Thresholds

In addition to establishing thresholds of significance for emissions of criteria air pollutants on a regional level, the 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, which would result in significant adverse localized air quality impacts. The LST methodology takes into account a number of factors, including: (1) existing ambient air quality in each Source Receptor Area (SRA); (2) how many acres the project would disturb in a day; and (3) how far project construction and operational activities would take place from the nearest sensitive receptor. Unlike the regional emission significance thresholds presented in Table 5.5-5, LSTs have only been developed for NOx, CO, PM_{10} and $PM_{2.5}$. The construction and operational LSTs for one-acre, two-acre, and five-acre sites in SRA 9 (East San Gabriel Valley), the SRA in which the City of Duarte is located, are shown in *Table 5.5-6*, *SCAQMD Localized Significance Thresholds for Receptor Area 9*.

Carbon Monoxide "Hot Spot" Thresholds

Historically, to determine whether a project poses the potential for a CO hotspot, the quantitative CO screening procedures provided in the *Transportation Project-Level Carbon Monoxide Protocol* (the Protocol) were used (UCD ITS 1997). The Protocol determines a project may worsen air quality if the project increases the percentage of vehicles in cold start modes by two percent or more; significantly increases traffic volumes by five percent or more; or worsens traffic flow, defined for signalized intersections as increasing average delay at intersections operating at level of service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F. With new vehicles and improvements in fuels resulting in fewer emissions, the retirement of older polluting vehicles, and new controls and programs, CO concentrations have declined dramatically in California. As a result of emissions controls on new vehicles, the number of vehicles that can idle and the length of time that vehicles can idle before emissions would trigger a CO impact has increased, so the use of LOS as an indicator is no longer applicable for determining CO impacts.

SCAQMD does not have a methodology for screening CO hotspots. However, the Bay Area Air Quality Management District (BAAQMD) developed a screening-level analysis for CO hotspots in 2010 which finds that projects that are consistent with the applicable congestion management program, and that do not cause traffic volumes at affected intersections to increase to more than 44,000 vehicles per hour, would not result in a CO hotspot that could exceed State or Federal air quality standards (BAAQMD 2017 pg. 3-4). To mirror this approach, SCAQMD performed CO modeling as part of its 2003 AQMP at four busy intersections during morning and evening peak hour periods. The busiest intersection studied in the analysis—Wilshire Boulevard and Veteran Avenue—had 8,062 vehicles per hour during morning peak hours, 7,719 vehicles per hour during evening peak hours, and approximately 100,000 vehicles per day. The 2003 AQMP estimated that the 1-hour CO concentration for this intersection was 4.6 ppm, which is less than a fourth of the 1-hour CAAQS CO standard (20 ppm) (SCAQMD 2003a). Thus, the BAAQMD screening threshold is generally consistent with the results of the CO modeling conducted for the SCAQMD's 2003 AQMP.

Therefore, for purposes of this EIR, the project would pose the potential for a CO hotspot if it would exceed the BAAQMD's screening traffic level for peak hour intersection traffic volumes (44,000 vehicles per hour) (thereby having the potential to result in CO concentrations that exceed 1-hour State [20 ppm], 1-hour Federal [35 ppm], and/or State and Federal 8-hour [9 ppm] ambient air quality standards for CO).

Table 5.5-6
SCAQMD Localized Significance Thresholds for Source Receptor Area 9

Pollutant Monitored	Maximum Allowable Emissions (Pounds per Day) as a Function of Receptor Distance (in Feet) from Site Boundary				
	82 Feet	**164 Feet**	**328 Feet**	**656 Feet**	**1,640 Feet**
ONE-ACRE SITE					
Construction Thresholds					
Nitrogen Oxides (NO_x)	89	112	159	251	489
Carbon Monoxide (CO)	623	945	1,914	4,803	20,721
Particulate Matter (PM_{10})	5	14	34	75	199
Particulate Matter ($PM_{2.5}$)	3	5	9	22	94
Operational Thresholds					
Nitrogen Oxides (NO_x)	89	112	159	251	489
Carbon Monoxide (CO)	623	945	1,914	4,803	20,721
Particulate Matter (PM_{10})	2	4	9	19	48
Particulate Matter ($PM_{2.5}$)	1	2	3	6	23
TWO-ACRE SITE					
Construction Thresholds					
Nitrogen Oxides (NO_x)	128	151	200	284	513
Carbon Monoxide (CO)	953	1,344	2,445	5,658	22,093
Particulate Matter (PM_{10})	7	22	42	84	207
Particulate Matter ($PM_{2.5}$)	5	7	12	26	100
Operational Thresholds					
Nitrogen Oxides (NO_x)	128	151	200	284	513
Carbon Monoxide (CO)	953	1,344	2,445	5,658	22,093
Particulate Matter (PM_{10})	2	6	11	20	50
Particulate Matter ($PM_{2.5}$)	2	2	3	7	25
FIVE-ACRE SITE					
Construction Thresholds					
Nitrogen Oxides (NO_x)	203	227	286	368	584
Carbon Monoxide (CO)	1,733	2,299	3,680	7,600	25,558
Particulate Matter (PM_{10})	14	43	63	105	229
Particulate Matter ($PM_{2.5}$)	8	11	17	35	116
Operational Thresholds					
Nitrogen Oxides (NO_x)	203	227	286	368	584
Carbon Monoxide (CO)	1,733	2,299	3,680	7,600	25,558
Particulate Matter (PM_{10})	4	11	16	26	55
Particulate Matter ($PM_{2.5}$)	2	3	5	9	28

Source: SCAQMD 2009, modified by MIG 2019
Note: The localized thresholds for NOx in this table account for the conversion of NO to NO_2. The emission thresholds are based on NO_2 levels, as this is the compound associated with adverse health effects.

Toxic Air Contaminant Thresholds

The SCAQMD recommends preparation of an HRA for large commercial or industrial projects to determine the specific health risks posed by long-term emissions of TACs from a project. Following OEHHA and SCAQMD guidance, health risks from TAC emissions are estimated based on "Individual Cancer Risk," which is the likelihood that a person exposed to TACs over 70-year lifetime will get cancer or suffer some other "non-cancer" effect (measured by what is called as a "hazard index"). Numerous weighting factors (e.g., age sensitivity factors, breathing rates, etc.) are applied during health risk calculations to account for those members of the public who may be more sensitive to pollution than others (e.g., sensitive receptors). A project is considered to have a significant impact if it results in any of the following:

- A maximum incremental cancer risk greater than or equal to 10 in one million; or
- A chronic or acute hazard index greater than or equal to 1.0.

The California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District*, 62 Cal.4th 369 (2015) ruled CEQA review is focused on a project's impact on the environment "and not the environment's impact on the project." The opinion also holds that when a project has "potentially significant exacerbating effects on existing environmental hazards" those impacts are properly within the scope of CEQA because they can be viewed as impacts of the project on "existing conditions" rather than impacts of the environment on the project. The Supreme Court provided the example of a project that threatens to disperse existing buried environmental contaminants that would otherwise remain undisturbed. The Court concluded that it is proper under CEQA to undertake an analysis of the dispersal of existing contaminants because such an analysis would be focused on how the project "would worsen existing conditions." The court also found that the limited number of express CEQA provisions that require analysis of the impacts of the existing environment on a project—such as impacts associated with school siting and airports—should be viewed as specific statutory exceptions to the general rule that such impacts are not properly within CEQA's scope.

In another recent Supreme Court Ruling—*Sierra Club v. County of Fresno* 6 Cal. 5th 502 (2018)—the Supreme Court held that CEQA requires a Lead Agency to make a reasonable effort to provide an appropriate, project-specific context and connection between mass pollutant emissions estimates (i.e., pounds per day or tons per year) and the potential health impacts associated with such emissions estimates, or to explain what is and is not yet known about the Project's "bare" emissions numbers and their potential adverse health impacts.

Consistent with these court rulings, the impact discussion presented below focuses on the proposed Project's effect on air quality and existing health risks, rather than the effect of existing air quality and its potential risks on the proposed project's residents. The analysis evaluates whether the proposed project would create or exacerbate adverse public health risk conditions at sensitive receptor locations, as identified in the SCAQMD's CEQA significance criteria.

CEQA SIGNIFICANCE CRITERIA

The issues presented in the Initial Study Environmental Checklist (*CEQA Guidelines* Appendix G) have been utilized as thresholds of significance in this Section. Accordingly, a project may create a significant environmental impact if it causes one or more of the following to occur:

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

- Result in a cumulatively considerable net increase of any criteria air pollutant for which the Project region is in non-attainment under an applicable Federal or State ambient air quality standard

- Expose sensitive receptors to substantial pollutant concentrations (i.e., carbon monoxide hot spots or TACs)

- Result in other emissions (such as those leading to odor) adversely affecting a substantial number of people

Based on these significance thresholds and criteria, the project's effects have been categorized as either "no impact," a "less than significant impact," or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

The standards used to evaluate the significance of impacts are often qualitative rather than quantitative because appropriate quantitative standards are either not available for many types of impacts or are not applicable for some types of projects.

5.5.4 PROJECT IMPACTS AND MITIGATION MEASURES

CONSISTENCY WITH THE SCAQMD AQMP

IMPLEMENTATION OF THE PROPOSED SPECIFIC PLAN COULD CONFLICT WITH THE SCAQMD 2016 AIR QUALITY MANAGEMENT PLAN.

Impact Analysis: The proposed project site is within the SCAB, which is under the jurisdiction of the SCAQMD. Pursuant to the methodology provided in Chapter 12 of the SCAQMD *CEQA Air Quality Handbook*, consistency with the AQMP is affirmed if the project:

1) Is consistent with the growth assumptions in the AQMP; and
2) Does not increase the frequency or severity of an air quality standards violation or cause a new one.

Consistency with Criterion 1 refers to the growth forecasts and associated assumptions included in the 2016 AQMP. The 2016 AQMP was designed to achieve attainment for all criteria air pollutants within the Basin while still accommodating growth in the region. Projects that are consistent with the AQMP growth assumptions would not interfere with attainment of air quality standards, because this growth is included in the projections used to formulate the AQMP. Therefore, if the growth under the project is consistent with the regional population, housing, and employment forecasts identified by SCAG in the RTP/SCS, plan implementation would be consistent with the AQMP, even if emissions could potentially exceed the SCAQMD's recommended daily emissions thresholds.

The proposed Specific Plan includes land use designations that support development of up to 1,400 dwelling units, accommodating a population of up to 4,242 residents. The plan area would also support approximately 383 employees. The 2016 RTP/SCS population and employment projections for the City of Duarte, as well as the population and employment that would occur with the implementation of the proposed Specific Plan, are shown in *Table 5.5-7*, *RTP/SCS and Specific Plan Growth Assumptions*.

Table 5.5-7
RTP/SCS and Specific Plan Growth Assumptions

Scenario	Population	Employment
Proposed Project		
Duarte Station Specific Plan	*4,242*	*383*
Other City Projects		
Duarte Town Center Specific Plan	3,180	577
City of Hope Campus Plan	--	1,841
Total Growth	**7,422**	**2,801**
RTC/SCS Growth 2012 - 2040	**2,800**	**1,800**
Within Growth Assumptions?	**No**	**No**
Source: SCAG 2016, City of Duarte 2019.		

As shown in *Table 4.3-6*, implementation of the proposed project, along with other City projects that have been approved, would exceed the growth assumptions contained in the AQMP. As such, the proposed Specific Plan would result in growth in the City that is inconsistent with the underlying assumptions used to develop strategies in the AQMP to bring the SCAB into attainment for criteria air pollutants. As such, implementation of the proposed Specific Plan would conflict with the SCAQMD 2016 AQMP with regard to the first criterion.

Consistency Criterion 2 refers to the CAAQS and NAAQS. As described in the following discussion under "Cumulatively Considerable Increase in Non-Attainment Pollutants," the SCAB is designated nonattainment for national and State O_3 standards, national and State $PM_{2.5}$ standards, and national PM_{10} standards. The analysis of potential buildout emissions under the following discussion indicates buildout of the Specific Plan would not result in the emission of criteria air pollutants that would exceed SCAQMD regional or LST thresholds after the implementation of Mitigation Measure AIR-2A and AIR-2B. In developing its CEQA significance thresholds the SCAQMD considered the emission levels at which a project's individual emissions would be cumulatively considerable (SCAQMD 2003b; page D-3). Since the proposed Specific Plan would not exceed the SCAQMD regional or LST thresholds, the project would be consistent with the second criterion.

Although the proposed Specific Plan would not exceed the SCAQMD's regional and LST significance thresholds after the implementation of Mitigation Measures AIR-2A and AIR-2B, the overall growth facilitated under buildout conditions would exceed those accounted for in the AQMP. Since buildout of the Specific Plan would ultimately increase the total mass emission of criteria air pollutants in the SCAB, the project would conflict with the implementation of the SCAQMD 2016 AQMP. This impact would be significant and unavoidable even with the incorporation of feasible mitigation measures.

CUMULATIVELY CONSIDERABLE INCREASE IN NON-ATTAINMENT POLLUTANTS

IMPLEMENTATION OF THE PROPOSED SPECIFIC PLAN COULD RESULT IN A CUMULATIVELY CONSIDREABLE INCREASE IN NON-ATTAINMENT CRITERIA AIR POLLUTANTS.

Development pursuant to the proposed updated Specific Plan would generate short-term construction and long-term operational emissions of regulated air pollutants (i.e., criteria air pollutants and TACs). These emissions would be released to the ambient air and disperse according to the topographic and meteorological influences that prevail near the Specific Plan area and in the greater SCAB (see Section 5.5.2).

Although future projects occurring within the plan area would be guided by the goals and policies outlined in the updated Duarte Station Specific Plan and the City's General Plan, the City's adoption of the proposed Specific Plan would neither authorize nor permit any individual projects to move forward at this time. Nonetheless, the City has prepared an air quality analysis that focuses on the nature and magnitude of the change in the air quality environment due to implementation and build-out of the proposed Specific Plan. The SCAQMD has not adopted plan-level significance thresholds. The SCAQMD and/or CARB monitor levels of criteria air pollutant concentrations in ambient air to evaluate attainment of CAAQS and NAAQS; the significance of the net change in criteria air pollutant emissions that the implementation of the Specific Plan could emit during construction and operation is evaluated below by comparing the potential levels of emissions from these activities against the SCAQMD's regional and localized significance thresholds (see *Table 5.5-5* and *Table 5.5-6*, above). As explained under the preceding analysis, the SCAQMD, in developing its CEQA significance thresholds, considered the emission levels at which a project's individual emissions would be cumulatively considerable (SCAQMD 2003b; page D-3). The SCAQMD considers projects that result in emissions that exceed its CEQA significance thresholds to result in individual impacts that are cumulatively considerable and significant.

Neither the SCAQMD nor CARB conducts regular and routine monitoring of TACs because most TACs do not have an established ambient air quality standard against which ambient air concentrations can be compared[2]; however, TAC emissions could result in local effects if substantial concentrations were to occur at sensitive receptor locations as a result of the proposed project. The proposed project's TAC emissions are discussed under the "Exposure Sensitive Receptors to Substantial Pollutant Concentrations" discussion, below.

Construction Emissions

Regional Construction Emissions. Implementation of the updated Duarte Station Specific Plan would lead to new uses in, and redevelopment of, the plan area. These development activities would take place over two phases. Phase 1, which would begin in 2020, consists of developing the two middle parcels with approximately 700 apartment units, 1,348 parking garage spaces, and 6,250 square feet of retail / commercial use. Phase 2 would consist of developing the northern and southernmost parcels with an additional 700 apartment units, 6,250 square feet of retail commercial use, and 100,000 square feet of commercial space. Although it is unknown

2 Ambient air quality standards have been adopted for lead and vinyl chloride, both of which are TACs; however, these pollutants are monitored at far fewer locations than criteria air pollutants like ozone precursor and PM. In addition, the SCAQMD does periodically conduct monitoring and modeling of TAC emissions sources; however, these efforts are usually source specific.

when construction of Phase 2 would begin, it is anticipated Phase 2 would be operational by 2025. As such, this analysis assumes construction of Phase 2 would begin in 2022, approximately two years after construction of Phase 1 has begun.

Construction during both phases would generally involve demolition, site preparation, grading, building construction, paving, and architectural coating (i.e., painting) activities. Fugitive dust (PM_{10}) emissions would typically be greatest during building demolition, site preparation, and grading due to the disturbance of soils and transport of material. NOx and other emissions would also result from the combustion of diesel fuels used to power off-road heavy-duty pieces of equipment (e.g., backhoes, bulldozers, excavators, etc.) and worker, vendor, and other construction-related vehicle trips. The types and quantity of equipment, as well as duration of construction activities, would be dependent on project specific conditions.

To determine if anticipated construction activities could result in a significant air quality impact, construction emissions were modeled for both phases using CalEEMod v. 2016.3.2. CalEEMod utilizes construction survey data to estimate construction phase lengths and equipment needs based on the geographic area of a project site. Specific Plan construction emission estimates for Phase 1 and 2 are presented in *Table 5.5-8*, *Unmitigated Regional Specific Plan Construction Emissions Estimates*.

Table 5.5-8
Unmitigated Regional Specific Plan Construction Estimates

Emissions Source	Daily Pollutant Emissions (lbs/day)(A)					
	VOC(B)	NO_X	CO	SO_X	PM_{10}(C)	$PM_{2.5}$(C)
Phase 1						
Year 1	6.5	42.5	53.5	0.2	10.5	5.9
Year 2	**162.9**(D)	35.7	50.3	0.2	10.3	3.5
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Emissions Exceed Thresholds?	***Yes***	***No***	***No***	***No***	***No***	***No***
Phase 2						
Year 3	4.4	37.2	38.6	0.1	8.9	5.4
Year 4	**244.4**	22.2	36.7	0.1	7.4	2.5
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Emissions Exceed Thresholds?	***Yes***	***No***	***No***	***No***	***No***	***No***

CO = carbon monoxide; VOC = volatile organic compounds; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns

Notes:

(A) Emissions were calculated using CalEEMod, as recommended by the SCAQMD. Estimates are based on default model assumptions unless otherwise noted. Maximum daily CO and SO_2 emissions occur during the summer. Maximum daily ROG, NO_X, PM_{10}, and $PM_{2.5}$ emissions occur during the winter.

(B) VOC emissions are calculated with low VOC coatings pursuant to SCAQMD Rule 1113. CalEEMod does not include this as a mitigation option for construction.

(C) The reduction/credits for construction emission mitigations are based on mitigation included in the CalEEMod model and as typically required by the SCAQMD through Rule 403. This rule requirement is captured in CalEEMod as "mitigation" for watering three times per day.

(D) Values in **bold** reflect emissions estimates that exceed SCAQMD thresholds.

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

As shown in *Table 5.5-8,* the maximum daily construction emissions generated by the Duarte Station Specific Plan would be below applicable SCAQMD regional thresholds for all pollutants except for VOC in the second year of construction in Phases 1 and 2 (Years 2 and 4, respectively), when peak architectural coating (e.g., paint) application activities would occur. This is considered a potentially significant impact.

To reduce potential VOC emissions generated during coating application activities to below SCAQMD threshold, the City would require applicants to implement Mitigation Measure AIR-2A, which requires the use of SCAQMD Rule 1113 "super compliant" coating with a lower VOC content than what is currently required by standard Rule 1113 requirements. Whereas the current Rule 1113 requirements provide coatings shall meet 50 grams of VOC per liter of coating, Mitigation Measure AIR-2A requires the preparation of a Coating Restriction Plan (CRP) demonstrating that all interior and exterior residential and non-residential architectural coatings used in Project construction meet the SCAQMD "super compliant" coating VOC content standard of less than 10 grams of VOC per liter of coating. As shown in *Table 5.5-9*, *Mitigated Regional Specific Plan Construction Estimates*, Mitigation Measure AIR-2A would substantially reduce VOC emissions during coating application activities.

Table 5.5-9
Mitigated Regional Specific Plan Construction Estimates

Emissions Source	Daily Pollutant Emissions (lbs/day)[(A)]					
	VOC[(B)]	NO_X	CO	SO_X	PM_{10}[(C)]	$PM_{2.5}$[(C)]
Phase 1						
Year 1	6.5	42.5	53.5	0.2	10.5	5.9
Year 2	39.3	35.7	50.3	0.2	10.3	3.5
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Emissions Exceed Thresholds?	***No***	***No***	***No***	***No***	***No***	***No***
Phase 2						
Year 3	4.4	37.2	38.6	0.1	8.9	5.4
Year 4	49.4	22.2	36.7	0.1	7.4	2.5
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Emissions Exceed Thresholds?	***No***	***No***	***No***	***No***	***No***	***No***

CO = carbon monoxide; VOC = volatile organic compounds; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns

Notes:
A. Emissions were calculated using CalEEMod, as recommended by the SCAQMD. Estimates are based on default model assumptions unless otherwise noted. Maximum daily CO and SO_2 emissions occur during the summer. Maximum daily ROG, NO_X, PM_{10}, and $PM_{2.5}$ emissions occur during the winter.
B. VOC emissions are calculated with low VOC coatings pursuant to SCAQMD Rule 1113. CalEEMod does not include this as a mitigation option for construction.
C. The reduction/credits for construction emission mitigations are based on mitigation included in the CalEEMod model and as typically required by the SCAQMD through Rule 403. This rule requirement is captured in CalEEMod as "mitigation" for watering three times per day.

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

As shown in *Table 5.5-9*, the maximum daily construction emissions generated by the proposed Duarte Station Specific Plan would be below the SCAQMD's regional construction emission thresholds with the inclusion of Mitigation Measure AIR-2A. Thus, the mitigation measure ensures the Duarte Station Specific Plan's regional construction emissions would have a less-than-significant impact.

Localized Construction Emissions. The Specific Plan's maximum daily construction emissions for Phases 1 and 2 are compared against the SCAQMD's-recommended LSTs in *Table 5.5-10*, *Construction Emissions Localized Significance Thresholds Analysis*. Consistent with the SCAQMD's LST methodology, the emissions in the construction LST analysis are on-site emissions only, and the LST thresholds against which potential on-site emissions are compared against are based on the project size, in acres, as determined using the specific equipment list generated by CalEEMod, and the equipment estimates contained in the SCAQMD's *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds* (SCAQMD 2016b).[3] The LST thresholds are for SRA 9 (East San Gabriel Valley), the SRA in which the proposed project is located, and are based on a receptor distance of 25 meters (82 feet), the closest LST receptor distance threshold recommended for use by the SCAQMD.

Based on the use of three rubber-tired dozers and four crawler tractors during the site preparation phase (for both Phase 1 and Phase 2), potential on-site construction emissions were estimated against the SCAQMD's thresholds for a 3.5-acre project size. The emissions are presented in *Table 5.5-10*, *Construction Localized Significance Thresholds Analysis*, include the application of dust control measures commensurate with SCAQMD Rule 403, as described above under the regional construction emissions discussion.

Table 5.5-10
Construction Emissions Localized Significance Thresholds Analysis

Emissions Source	Daily Pollutant Emissions (lbs/day)[A]			
	NO_X	CO	PM_{10}[B]	$PM_{2.5}$[B]
Phase 1				
Demolition	33.2	21.8	3.9	1.9
Site Preparation	42.4	21.5	9.2	5.9
Grading	26.4	16.1	3.8	2.5
Building Construction – Year 1	19.2	16.8	1.1	1.1
Building Construction – Year 2	17.4	16.6	1.0	0.9
Paving	12.9	14.7	0.7	0.6
Architectural Coating	1.5	1.8	0.1	0.1
SCAQMD Construction LST Thresholds	*163.1*	*1,330.9*	*10.6*	*6.3*
Emissions Exceed Thresholds?	***No***	***No***	***No***	***No***
Phase 2				
Demolition	25.7	20.6	5.1	1.7
Site Preparation	33.1	19.7	8.7	5.4
Grading	20.9	15.3	3.5	2.2
Building Construction – Year 3	15.6	16.4	0.8	0.8
Building Construction – Year 4	14.4	16.2	0.7	0.7
Paving	10.2	14.6	0.5	0.5
Architectural Coating	1.3	1.8	0.1	0.1
SCAQMD Construction Thresholds	*163.1*	*1,330.9*	*10.6*	*6.3*
Emissions Exceed Thresholds?	***No***	***No***	***No***	***No***

[3] According to the SCAQMD's *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*, the maximum number of acres disturbed on the peak day of use per crawler tractor, grader, and rubber tired dozer is 0.5 acres per 8 hour day, while the maximum number of acres disturbed on the peak day of use per scraper is 1 acre per 8 hour day.

Table 5.5-10
Construction Emissions Localized Significance Thresholds Analysis

Notes: A. Emissions were calculated using CalEEMod, as recommended by the SCAQMD. Estimates are based on default model assumptions unless otherwise noted. Maximum daily CO and SO_2 emissions occur during the summer. Maximum daily ROG, NO_X, PM_{10}, and $PM_{2.5}$ emissions occur during the winter. B. The reduction/credits for construction emission mitigations are based on mitigation included in the CalEEMod model and as typically required by the SCAQMD through Rule 403. This rule requirement is captured in CalEEMod as "mitigation" for watering three times per day.
Refer to Appendix E, Air Quality/Greenhouse Gas Data, for assumptions used in this analysis.

As shown in *Table 5.5-10*, the maximum daily on-site emissions generated during project construction would not exceed the SCAQMD's recommended construction LST thresholds. Thus, this impact would be less than significant.

Operational Emissions

Regional Operational Emissions. The Specific Plan area is currently occupied by light industrial land uses. Under buildout of the Specific Plan, these land uses would be converted to residential, commercial, and retail land uses. Overall, implementation of the Specific Plan would remove 313,955 square feet of light industrial land use and add 1,400 dwelling units, 12,500 square feet of commercial/retail space, and 100,000 square feet of office space.

Buildout of the Specific Plan would result in long-term regional emissions of criteria air pollutants and ozone precursors associated with the operation of area sources, energy sources, and mobile sources. Area source emissions, which are widely distributed and made of many small emissions sources (e.g., landscaping equipment, consumer products, painting operations, etc.), were modeled according to the size and type of land use proposed. Energy sources, which include natural gas combustion for heating and other purposes, were also modeled based on the size and type of build-out land uses included in the Specific Plan. Mobile-source emissions were modeled based on the daily vehicle trips that would result from the proposed Specific Plan. The net change in emissions of regulated air pollutants that would occur with implementation of the Specific Plan was modeled using CalEEMod, V. 2016.3.2. The net change in operational emissions for the project was modeled based on the Specific Plan's horizon year (2025), using default data assumptions provided by CalEEMod, with the following project-specific modifications:

- **Land Use Development:** The default acreage and square footage for proposed development intensities within the plan area was adjusted to reflect proposed development conditions (considering allowable floor-to-area ratio, acreage in the plan area, etc.). Consistent with the TIS prepared by Fehr and Peers for the proposed Specific Plan, the 12,500 square feet of commercial/retail space was split evenly between "High Turnover (Sit Down Restaurant)" for commercial land use and "Strip Mall" for the retail land use.
- **Area Sources:** Woodstoves and hearths were excluded pursuant to SCAQMD Rule 445.
- **Energy Use and Consumption:** The residential default electrical energy intensity values were adjusted downward by a factor of 0.47 to reflect increased energy efficiency and solar photovoltaic requirements of the 2019 energy code (CEC, 2018). Similarly, the non-residential default light energy intensity values were adjusted downward by a factor of 0.7 to reflect increased lighting efficiency in the 2019 energy code.

- **Mobile Sources:** The default weekday trip generation rates for existing land use types were replaced with trip generation rates contained in the TIS prepared for the Duarte Station Specific Plan (Fehr & Peers, 2019). According to the TIS, the proposed land uses generate approximately 7,457 total daily vehicle trips per weekday. Default weekend trip rates were scaled based on the difference in weekday trip generation between CalEEMod and the TIS. As estimated using CalEEMod, the existing, light industrial land uses in the plan area generate approximately 3,884,754 annual vehicle miles travelled, or VMT (see Appendix E).

The net change in operational emissions that would be generated by buildout of the proposed Specific Plan are shown in *Table 5.5-11*, *Unmitigated Regional Operational Emissions Estimates*.

Table 5.5-11
Unmitigated Regional Operational Emissions Estimates

Emissions Source	Daily Pollutant Emissions (lbs/day)[(A)]					
	VOC[(B)]	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Existing Emissions (2019)						
Area Sources	6.6	<0.0[(C)]	<0.0[(C)]	0.00	<0.0[(C)]	<0.0[(C)]
Energy Sources	0.1	0.9	0.7	<0.0[(C)]	0.1	0.1
Mobile Sources	3.1	15.2	45.0	0.14	10.7	3.0
Total Emissions[(C)]	*9.8*	*16.1*	*45.8*	*0.15*	*10.8*	*3.0*
Specific Plan Buildout Emissions (2025)						
Area Sources	34.1	22.2	124.4	0.1	2.3	2.3
Energy Sources	0.6	5.4	2.6	<0.0[(C)]	0.4	0.4
Mobile Sources	*11.0*	*48.5*	*145.9*	*0.6*	*52.8*	*14.4*
Total Emissions[(C)]	*45.8*	*76.1*	*272.9*	*0.7*	*55.6*	*17.2*
Net Change in Emissions Levels						
Area Sources	*27.5*	*22.2*	*124.4*	*0.1*	*2.3*	*2.3*
Energy Sources	*0.5*	*4.5*	*1.9*	<0.0[(C)]	*0.3*	*0.3*
Mobile Sources	*7.9*	*33.3*	*100.9*	*0.5*	*42.1*	*11.4*
Total Emissions[(C)]	*36.0*	*60.0*	*227.1*	*0.6*	*44.8*	*14.2*
SCAQMD CEQA Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Emissions Exceed Thresholds?	***No***	***Yes***	***No***	***No***	***No***	***No***

Notes:
A. Emissions were calculated using CalEEMod, as recommended by the SCAQMD. Estimates are based on default model assumptions unless otherwise noted. Maximum daily CO and SO_2 emissions occur during the summer. Maximum daily ROG, NO_X, PM_{10}, and $PM_{2.5}$ emissions occur during the winter.
B. VOC emissions are calculated with low VOC coatings pursuant to SCAQMD Rule 1113. CalEEMod does not include this as a mitigation option.
C. "<0.0" does not indicate the emissions are less than or equal to 0; rather, it indicates the emission is smaller than 0.1 but larger than 0.00.

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

As shown in *Table 5.5-11*, the modeled, maximum daily operational emissions associated with build-out of the Specific Plan do not exceed the SCAQMD's recommended regional pollutant thresholds for all criteria air pollutant emissions, except NOx. The increase in NOx, as well as other mobile source emissions, is attributable to the increase in VMT that would occur with implementation of the Specific Plan. As described in Section 5.5.2, the SCAB is designated nonattainment for national and State ozone standards, and NOx is an ozone precursor pollutant. Therefore, the potential increase in NOx emissions that could occur with buildout of the Specific Plan is considered a potentially significant impact.

As shown in *Table 5.5-11*, the increase in regional NOx emissions anticipated to occur under buildout conditions would primarily come from area and mobile sources. Area sources account for approximately 37 percent of NOx emissions, and mobile sources account for approximately 56 percent. The NOx emissions from areas sources are specifically attributable to additional natural gas consumption and combustion associated with operation of the gas fireplaces that would be located in the approximately 1,400 apartment units. The increase in NOx emissions from mobile sources is attributable to the increase in VMT that would occur under increased land use development intensity in the Plan area.

The TIS prepared for the project indicates the default land use trip generation rates were reduced to reflect: the characteristics of the street system servicing the project site; accessibility of routes to and from the project site; locations of commercial centers to which residents of the project would be drawn; and locations of the residential area from which other persons would be drawn (Fehr & Peers, 2019). Overall, these characteristics are estimated to reduce annual VMT by approximately 22.5 percent compared to standard trip generation rates.

To reduce the amount of NOx emissions generated by the proposed project, the City would implement Mitigation Measure AIR-2B, which requires project applicants to demonstrate the proposed apartment land uses do not include gas fireplaces in more than 60 percent of the apartment units proposed. By reducing the number of fireplaces, there would be fewer units that could use natural gas to heat the unit via operation of the fireplace, and, as a result, NOx emissions from that area source would also be reduced. *Table 5.5-12*, *Mitigated Regional Operational Emissions Estimates*, presents the proposed Specific Plan's estimated operational emissions after the application Mitigation Measure AIR-2B.

As shown in *Table 5.5-12*, implementation of Mitigation Measure AIR-2B would reduce area source NOx emissions from approximately 22.2 lbs/day to approximately 15.3 lbs/day, which brings the Plan area's net NOx emissions to 53.1 lbs/day; approximately two lbs/day below the SCAQMD threshold. Therefore, after the implementation of Mitigation Measure AIR-2B, this impact would be less than significant.

Table 5.5-12
Mitigated Regional Operational Emissions Estimates

Emissions Source	Daily Pollutant Emissions (lbs/day)[A]					
	VOC[B]	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Existing Emissions (2019)						
Area Sources	6.6	<0.0[C]	<0.0[C]	0.00	<0.0[C]	<0.0[C]
Energy Sources	0.1	0.9	0.7	<0.0[C]	0.1	0.1
Mobile Sources	3.1	15.2	45.0	0.14	10.7	3.0
Total Emissions[C]	*9.8*	*16.1*	*45.8*	*0.15*	*10.8*	*3.0*
Specific Plan Buildout Emissions (2025)						
Area Sources	33.3	15.3	121.5	0.1	1.8	1.8
Energy Sources	0.6	5.4	2.6	<0.0[C]	0.4	0.4
Mobile Sources	*11.0*	*48.5*	*145.9*	*0.6*	*52.8*	*14.4*
Total Emissions[C]	*44.9*	*69.2*	*270.0*	*0.7*	*55.0*	*14.4*
Net Change in Emissions Levels						
Area Sources	26.7	15.3	121.5	0.1	1.8	1.8
Energy Sources	0.5	4.5	1.9	0.0	0.3	0.3
Mobile Sources	7.9	33.3	100.9	0.5	42.1	11.4
Total Emissions[C]	35.1	53.1	224.2	0.6	44.2	13.6
SCAQMD CEQA Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Emissions Exceed Thresholds?	***No***	***No***	***No***	***No***	***No***	***No***

Notes:
A. Emissions were calculated using CalEEMod, as recommended by the SCAQMD. Estimates are based on default model assumptions unless otherwise noted. Maximum daily CO and SO_2 emissions occur during the summer. Maximum daily ROG, NO_X, PM_{10}, and $PM_{2.5}$ emissions occur during the winter.
B. ROG emissions are calculated with low VOC coatings pursuant to SCAQMD Rule 1113. CalEEMod does not include this as a mitigation option.
C. "<0.0" does not indicate the emissions are less than or equal to 0; rather, it indicates the emission is smaller than 0.1 but larger than 0.00.
Refer to Appendix E, Air Quality/Greenhouse Gas Data, for assumptions used in this analysis.

Localized Operational Emissions. The project's maximum daily operational emissions are compared against the SCAQMD's-recommended LSTs in *Table 5.5-13*, *Operational Emissions Localized Significance Thresholds Analysis*. Consistent with the SCAQMD's LST methodology, the emissions included in the operational LST analysis are on-site emissions only, and the LST thresholds against which these on-site emissions are compared are based on the average project size, in acres. The LST thresholds are for SRA 9 (East San Gabriel Valley), the SRA in which the project is located, and are based on a receptor distance of 25 meters (82 feet), the closest LST receptor distance threshold recommended for use by the SCAQMD.

Table 5.5-13
Operational Emissions Localized Significance Thresholds Analysis

Emissions Source(A)	Daily Pollutant Emissions (lbs/day)(B)			
	NO_X	CO	PM_{10}(B)	$PM_{2.5}$(B)
Total Area Emissions	15.3	121.5	1.8	1.8
Total Energy Emissions	5.4	2.6	0.4	0.4
Total On-site Mobile Emissions(C)	*4.9*	*14.6*	*5.3*	*1.4*
Total On-site Emissions in Plan area	*25.6*	*138.7*	*7.5*	*3.6*
Average Emissions per Acre(D)	1.3	7.3	0.4	0.2
SCAQMD LST Thresholds	*91*	*664*	*1*	*1*
Emissions Exceed Thresholds?	***No***	***No***	***No***	***No***

Notes:
A. See *Table 5.5-12*.
B. Emissions presented are worst-case and may reflect summer or winter emissions levels. In general, due to rounding, there is no difference between summer and winter levels for the purposes of this table.
C. Total on-site emissions are equal to 10% of the total mobile emissions estimated in *Table 5.5-12.*
D. The Plan area is approximately 19.08 acres in size
E. LST threshold is based on a 1.0-acre project size and 25-meter receptor distance. See *Table 5.5-6*.
Refer to Appendix E, Air Quality/Greenhouse Gas Data, for assumptions used in this analysis.

As shown in *Table 5.5-13*, the total emissions from all on-site operational activities within the plan area would be below the SCAQMD's recommended LST threshold for a one-acre project for all pollutants. The radius of a one-acre circle is approximately 25 meters. Therefore, the emissions occurring within one acre of the plan area would not subject a sensitive receptor within 25 meters of the plan area to criteria air pollutant emissions in excess of the LSTs. The use of one-acre LSTs at a distance of 25 meters is considered a conservative approach, since they are the lowest LST values applicable within the plan area (see *Table 5.5-6*). This impact would be less than significant.

Mitigation Measures

Mitigation Measure AIR-2A: The City shall require applicants comply with South Coast Air Quality Management District Rule 1113 to reduce VOC emissions from architectural coating applications. Prior to the issuance of a building permit for the Project, the Applicant shall submit, to the satisfaction of the Planning Division, a Coating Restriction Plan (CRP), consistent with South Coast Air Quality Management District (SCAQMD) guidelines. The applicant shall include in any construction contracts and/or subcontracts a requirement that project contractors adhere to the requirements of the CRP. The CRP shall include a requirement that all interior and exterior residential and non-residential architectural coatings used in project construction meet the SCAQMD "super compliant" coating VOC content standard of less than 10 grams of VOC per liter of coating. The CRP shall also specify the use of high-volume, low pressure spray guns during coating applications to reduce coating waste.

Requirements and Timing: Applicant shall receive Planning Division approval of a Coating Restriction Plan (CRP) prior to receipt of building permits.
Monitoring: City Planning staff shall conduct site inspections to ensure that the CRP is followed during construction.

Mitigation Measure AIR-2B: The City shall require all apartment buildings in the plan area be constructed such that no more than 60 percent of units in the structure have fireplaces (natural gas or otherwise). This requirement shall be included in all engineering diagrams and any construction contracts and/or subcontracts. The City Building Department shall review all plans sets to ensure all apartment structures are designed to this specification.

Requirements and Timing: The Building Department shall review and approve all plan sets prior to receipt of building permits.
Monitoring: City Planning staff shall conduct site inspections to ensure apartment structures are being built to this mitigation requirement.

EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS

IMPLEMENTATION OF THE PROPOSED PROJECT WOULD NOT EXPOSE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS.

Impact Analysis Buildout of the proposed Specific Plan could expose existing and new sensitive receptors to substantial concentrations of criteria air pollutants and TAC emissions that pose adverse health effects; however, as described in more detail below, these emissions would be less than significant with standard environmental review practices.

CO Hotspots

Based on the TIS prepared for the Project (see Appendix E), the maximum number of vehicles moving through any study analysis zone would be substantially below the screening threshold of 44,000 vehicles per hour for a CO hotspot analysis (See Section 5.5.3). Therefore, the project would not cause or significantly contribute to CO concentrations that exceed State or Federal ambient air quality standards for CO. This impact would be less than significant.

Asbestos

Pursuant to guidance issued by the Governor’s Office of Planning and Research, State Clearinghouse, lead agencies are encouraged to analyze potential impacts related to naturally occurring asbestos. Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, Federal, and international agencies and was identified as a TAC by CARB in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed.

Serpentinite and/or ultramafic rock are known to be present in 44 of California’s 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath

Mountains, and Coast Ranges. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (dated August 2000), the proposed project is not located in an area where naturally occurring asbestos is likely to be present. Therefore, impacts would be less than significant.

It is also possible that asbestos-containing materials may exist within older existing buildings that may be modified or demolished. Therefore, the possibility exists that asbestos fibers may be released into the air should no asbestos assessment or removal (if needed) take place prior to demolition. Standard practice pursuant to SCAQMD Rule 1403 is to conduct an asbestos assessment for candidate buildings to determine the presence of asbestos. If identified, an asbestos abatement contractor would be retained to develop an abatement plan and remove the asbestos containing materials, in accordance with local, State, and Federal requirements. After removal, demolition may proceed without significant concern to the release of asbestos fibers into the air. Also refer to Section 5.8, Hazards and Hazardous Materials, for additional discussion of asbestos and asbestos-containing materials.

Fugitive Dust and DPM Emissions

The proposed project would have the potential to expose existing sensitive receptors present within and near the project area to fugitive dust and DPM during construction and operation. Construction activities associated with the Project would have the potential to generate fugitive dust and emissions of DPM, a TAC, which could impact sensitive air quality receptors. Operation of the project would generate vehicle DPM emissions in the area, also having the potential to impact sensitive receptors.

In addition, portions of the plan area range from approximately 110 feet to 1,000 feet south of the I-210, an existing local source of DPM emissions.[4] Development associated with Phase 1 of the Duarte Station Specific Plan would result in the placement of new sensitive residential receptors within approximately 430 feet of I-210, and development associated with Phase 2 would have the potential to place new sensitive residential receptors within 110 feet of I-210 as well. Pursuant to the California Supreme Court's decision in *CBIA v. BAAQMD*, an analysis of whether the proposed Project would exacerbate the existing health risks associated with I-210 vehicle emissions is also required.

According to the SCAQMD's MATES IV Carcinogenic Risk Map, the existing cancer risk on either side of I-210 in the project vicinity (south and north of I-210) is 1,340 and 1,127, respectively (i.e., there is a probability of 1,340 and 1,127 cases of cancer out of a population of one million) (SCAQMD 2018a). These cancer risks are orders of magnitude higher than the SCAQMD's significance threshold of 10 cases in one million for cancer risk. These estimates, however, are based upon regional modeling efforts that largely do not account for site specific emission rates and dispersion characteristics that typically result in refined and substantially lower health risk estimates. Therefore, potential health risks associated with vehicle emissions along I-210 in the project vicinity were calculated (see below and Appendix E).

[4] Gasoline and diesel-fueled vehicles travelling on I-210 would emit other TACs besides DPM; however, these other TACs would be emitted in much lower quantities than DPM. In addition, the SCAQMD's MATES IV study continues to identify DPM as the primary contributor to mobile source risks estimates. Accordingly, this EIR focuses on the risk from DPM emitted by vehicles travelling on I-210 as an overall indicator of potential adverse health risks from mobile sources operating near the site.

CalEnviroScreen is another mapping tool that helps identify California communities that are most affected by many sources of pollution, and where people are often especially vulnerable to pollution's effects. The tool uses environmental, health, and socioeconomic information to produce scores for every census tract in the State. The scores are then mapped so that different communities can be compared. An area with a high score is one that experiences a much higher pollution burden than areas with low scores. According to the OEHHA CalEnviroScreen 3.0 Map, the Project area is in census tract 6037430101 and has an average pollution indicator percentile of 85% to 90% based on the CalEnviroScreen indicators (e.g., exposure, environmental effects, population characteristics, socioeconomic factors) (OEHHA 2018). These numbers also indicate relatively high health risks in the project area, likely attributable to the proximity to the I-210 and I-605 freeways.

To determine if the project would exacerbate health risks associated with DPM emissions in the area, an HRA was conducted to evaluate the potential health hazards to new residential receptors in the project area from I-210, as well as to children. The HRA methodology and results are presented below and included in an *Air Quality Impact Analysis Report* contained in Appendix E. Emission factor calculations, dispersion model inputs, outputs, and HRA calculations are all contained in the report in Appendix E.

Construction Fugitive Dust and DPM Emissions. Construction activities associated with buildout of the Specific Plan would result in demolition, site preparation, grading, and other activities that would generate fugitive dust; however, as shown under the discussion for "Cumulatively Considerable Increase in Non-Attainment Criteria Air Pollutants" above, the total PM_{10} and $PM_{2.5}$ emissions generated during construction of the project would be below SCAQMD LST thresholds. The SCAQMD's LST thresholds 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 AAQS. Thus, since project construction emissions would not exceed applicable LST thresholds, the proposed project would not expose sensitive receptors to substantial fugitive dust concentrations.

A portion of the PM_{10} and $PM_{2.5}$ emissions generated during construction Phase 1 and Phase 2 of the Duarte Station Specific Plan (see *Table 5.5-10*) would be DPM. DPM is a TAC that can potentially cause substantial adverse health risks at concentrations lower than the ambient air quality standards for PM_{10} and $PM_{2.5}$ set by the Federal and State CAA. Equipment with diesel engines would be used during all construction phases (e.g., demolition, site preparation, etc.) of the proposed Specific Plan, and some construction activities would occur as close as approximately 30 to 70 feet away from sensitive receptor locations (e.g., receptors along Fairdale Avenue, 3 Ranch Roach, Denning Avenue, and Glenford Avenue). Although construction activities could take place as close as 30 to 70 feet from sensitive receptors, the vast majority of equipment operation would occur on the interior of the plan area, several hundred feet or more from sensitive receptor locations.

In addition, implementation of idling restrictions under CARB regulations (i.e., idling for no more than five minutes) would minimize DPM emissions from construction equipment. Furthermore, as shown in Figure 5.5-1, the prevailing daytime wind direction is from the west/southwest at the nearest meteorological station maintained by the SCAQMD in Azusa (less than five miles east of the Project area). Wind conditions at this location are considered representative of wind conditions in the Project area, meaning that DPM emissions generated by construction equipment would generally be pushed to the east/northeast, away from the closest sensitive residential receptors, and pollutants would quickly disperse over distance. Finally, potential long-term adverse health risks from DPM are evaluated assuming a constant exposure to emissions over a 70-year lifetime, 24 hours a day, seven days a week, with increased risks generally associated with increased proximity to emissions sources. Since construction activities would only generate DPM emissions on an interim, short-term basis, DPM emissions from construction activities would be unlikely to result in adverse health effects to existing sensitive receptors that exceed the SCAMQD's significance criteria listed in Section 5.5.3. Therefore, construction activities associated with buildout of the Project would not expose nearby sensitive receptors to substantial levels of DPM that would pose a significant adverse health risk. This impact would be less than significant.

Operational – Health Risks to Exposure from I-210 Emissions. An HRA was performed to determine the health risk associated with operation of the project consistent with the guidance and recommendations contained in the SCAQMD's CEQA *Air Quality Handbook*, as amended and supplemented (SCAQMD 2017a), SCAQMD's *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions* (SCAQMD 2003b), and OEHHA's *Air Toxics Hot Spots Program Guidance Manual* (OEHHA 2015).

The U.S. EPA's AERMOD dispersion model was used to predict pollutant concentrations from the I-210 at the proposed project boundary. The AERMOD dispersion model is a U.S. EPA-approved and SCAQMD-recommended model for simulating the dispersion of pollutant emissions and estimating ground level concentrations of pollutants at specified receptor locations. AERMOD requires the user to input information on the source(s) of pollutants being modeled, the receptors where pollutant concentrations are modeled, and the meteorology, terrain, and other factors that affect the potential dispersion of pollutants. These variables are described below and shown in detail in Appendix E to this EIR.

Modeled I-210 Sources/Emission Rates. Emissions from the I-210 were modeled as a polygon-area source shown in *Table 5.5-14*, *AERMOD Source Parameters*. The area source representing the freeway was extended 1,000 feet to the east and west of the plan area to capture emissions emanating from I-210 both adjacent to and in proximity to the plan area. The total length of I-210 modeled was approximately 3,238 feet, or 0.61 miles.

Table 5.5-14
AERMOD Source Parameters

ID	Description	UTM Coordinates[(A)]		Size (m^2)
		X	Y	
PAREA1	I-210 (Eastbound and Westbound)	410188.74	3777583.15	46,592.0
Source: MIG 2019, see Appendix E. (A) UTM coordinates represent the northwest corner of the source.				

Consistent with SCAQMD recommendations, PM_{10} exhaust from diesel vehicles travelling along I-210 was evaluated in the HRA. The emission rate for the segment of I-210 modeled in the operational HRA was derived from diesel vehicle emission factors and vehicle population data contained in CARB's EMFAC model and annual average daily traffic volume data available from Caltrans. Using EMFAC data (for the Los Angeles South Coast Sub-Area), an average diesel emission factor, in terms of grams per mile, was developed for each vehicle class, based on a speed of 65 miles per hour. Then the population percentage for each vehicle class was multiplied by the annual average daily trips (AADT) for the segment of I-210 adjacent to the project area, between Buena Vista Street and the I-605/I-215 junction, to determine the total amount of diesel vehicles traveling adjacent to the project area.[5] This diesel vehicle estimate was then multiplied by the total segment length (0.61 miles) to determine the total miles travelled by each vehicle class. The total miles travelled were then multiplied by the average emission factor to determine total diesel vehicle emissions emitted from the modeled portion of I-210. *Table 5.5-15*, *AERMOD Source Emissions Rate Information*, summarizes the aver emission factors, vehicle class population percentage, VMT, and total diesel emissions occurring within the modeled source.

Table 5.5-15
AERMOD Source Emissions Rate Information

Vehicle Class	Emission Factor at 65 MPH (grams per mile)(A)	Vehicle Population(B)	Vehicle Miles Traveled(C)	Total Daily PM_{10} Emissions (Grams)(D)	Total Daily PM_{10} (Grams Per Second)(E)
LDA	0.001611306	0.45%	848	1.808857102	2.09358E-05
LDT1	0.028116599	0.00%	8	0.269520366	3.11945E-06
LDT2	0.003345548	0.11%	209	0.725303357	8.39471E-06
LHDT1	0.006014986	0.81%	1,545	10.01385464	0.000115901
LHDT2	0.010734683	0.33%	624	6.844403056	7.92176E-05
HHDT	0.033787693	0.77%	1,458	51.51689952	0.00059626
MDV	0.001345391	0.24%	460	0.713820065	8.26181E-06
MH	0.038410995	0.08%	145	6.186299655	7.16007E-05
MHDT	0.015244088	0.88%	1,680	31.79783868	0.000368031
OBUS	0.023503175	0.04%	79	2.075569263	2.40228E-05
SBUS	0.018215134	0.05%	89	0	0
UBUS	0.003787529	0.00%	0	0.001306541	1.5122E-08
Total	--	3.75%	7,145	111.9536722	0.00129576

Source: EMFAC2017 and Caltrans 2019
(A) Emission factors represent the average emission factor for the vehicle class over the 2021 to 2050 time period. Emission factors are reported for a speed of 65 miles per hour.
(B) Population percentage reflects the proportion of each vehicle class out of the total amount of vehicles in the Los Angeles (South Coast) sub-area.
(C) Vehicle miles travelled is estimated by multiplying the vehicle population percentage times 252,000 (the ADT on I-210), times the modeled segment length (0.61 miles).
(D) Total daily emissions are estimated by multiplying the vehicle miles travelled by the average emission factor.
(E) Grams per second is derived based on 86,400 seconds per day.

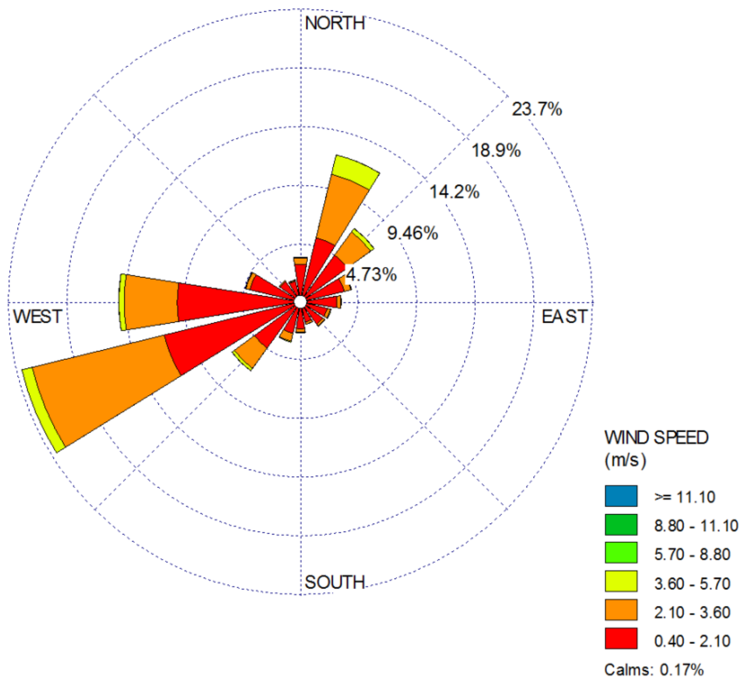
The release height for the modeled source was set to 3.28 meters to approximate an average height for all vehicle exhaust sources.

Meteorological Data Inputs. AERMOD requires meteorological data as an input into the model. The meteorological data is processed using AERMET, a pre-processor to AERMOD. AERMET requires surface meteorological data, upper air meteorological data, and surface parameter data such as albedo (reflectivity) and surface roughness. For the proposed project, pre-processed surface data from the SCAQMD was obtained for the Azusa meteorological station, the closest meteorological station to the project site. Five complete years of meteorological data from January 2012 to December 2016 were utilized. Emissions were presumed to be generated 24-

[5] Since the AADT highway values provided by Caltrans for Year 2017, an annual growth factor of one percent per year was applied out to Year 2025. Then, the adjusted AADT values for Year 2021 through Year 2050 were averaged to arrive at 311,972, the average, estimated AADT on the I-210 between Year 2021 and Year 2050.

hours per day. The wind rose for the Azusa meteorological station data set is shown in *Figure 5.5-1*, *Wind Rose for Azusa Meteorological Station (Blowing From)*.

Figure 5.5-1
Wind Rose for Azusa Meteorological Station (Blowing From)



Source: SCAQMD 2018b

Terrain Inputs. Terrain was incorporated by using AERMAP (an AERMOD pre-processer) to import the elevation of the project site using data from the National Elevation Dataset with a resolution of 1/3 arcsecond.

Modeled Receptors. Emissions were modeled in a single-tier fenceline grid. The single tier consisted of five-meter spacing from the fenceline for a distance of 25 meters. Primary and intermediate (spaced every five meters) were also modeled. The receptor grids were then converted to discrete Cartesian receptors (1,568 in total). Receptors were modeled at heights of 0.0 and 10 meters and (33 feet) above the ground.

Cancer Risk. Cancer risk is the calculated, pollutant-specific estimated probability of developing cancer based upon the dose and exposure to the TAC. Cancer risk is determined by calculating the combinatory effects of a cancer potency factor (CPF) when inhaling the toxic, the daily inhalation dose, the age group the receptor is cohort to, the duration of exposure over a lifetime (70 years), and other factors such as age sensitivity and the amount of time spent at the location of exposure.

For the proposed project, risks were assessed for the inhalation pathway (i.e., breathing) for both residential and worker receptors. Additionally, residential receptors were assessed under a 70-year exposure duration to further detail potential risk to those under lifetime exposure. Cancer risk equations for residential receptors is summarized in *Table 5.5-16*, *Cancer Risk Equations* and *Table 5.5-17*, *Inhalation Dose Equations*.

Table 5.5-16
Cancer Risk Equations

Equation 1 - Residential Risk:	$RISK_{INH.RES} = DOSE_{AIR.RES} \times CPF \times ASF \times \frac{ED}{AT} \times FAH$
Where:	
$DOSE_{AIR}$ =	Daily Inhalation Dose (mg/kg-day). See Table 5.5-17.
CPF =	Cancer Potency Factor for Inhalants (mg/kg-day). CPF is expressed as the 95th percent upper confidence limit of the slope of the dose response curve under continuous lifetime exposure conditions. The CPF for diesel exhaust is 1.1 mg/kg-day.
ASF =	Age Sensitivity Factor. ASF is a protective coefficient intended to take into account increased susceptibility to long-term health effects from early-life exposure to TACs. The recommended ASFs are 10 for the third-trimester to birth and two-year age bins, three for the two-year to nine-year and 16-year age bins, and one for receptors over 16 years of age.
ED =	Exposure Duration (years). Exposure duration characterizes the length of residency (30 Years) of the receptor.
AT =	Averaging Time (years). A 70-year (lifetime) averaging time is used to characterize to total risk as a factor of average risk over a typical lifespan.
FAH =	Fraction at Home. FAH is the percentage of time the receptor is physically at the receptor location. The recommended percentages are 85 percent for the third-trimester to birth and two-year age bins, 72 percent for the two-year to nine-year and 16-year age bins, and 73 for receptors over 16 years of age.

Table 5.5-17
Inhalation Dose Equations

Residential Dose	$DOSE_{AIR.RES} = C_{AIr} \times \frac{BR}{BW} \times A \times EF \times 10^{-6}$
Where:	
C_{AIR} =	Concentration of TAC in air (µg/m^3). Concentration of toxic in micrograms per one cubic meter of air. The AERMOD program is used in the study to determine concentrations of diesel particulate matter at surrounding discrete and grid receptor points.
BR/BW =	Breathing Rate ÷ Body Weight (L/kg/day). Daily breathing rate normalized to body weight. The 95th percentile breathing rate to body weight ratios are used in this study with a recommended 361 L/kg/day for the third-trimester to birth age bin, 1,090 L/kg/day for the birth to two-years age bin, 861 L/kg/day for the two-years to nine-years age bin, 745 for the two-years to 16-years age bin, 335 L/kg/day for the 16-years to 30-years age bin, and 290 L/kg/day for the 16-years to 70-years age bin.
A =	Inhalation Absorption Factor. Is a coefficient that reflects the fraction of chemical absorbed in studies used in the development of CPF and Reference Exposure Levels (RELs). An absorption factor of one is recommended for all chemicals.
EF =	Exposure Frequency. EF is the ratio of days in a year that a receptor is receiving the dose. The recommended EF is 0.96 characterizing an assumed 350 days a year that a residential receptor is home for some portion of the day.

Maximally Exposed Individual Resident. Cancer risk was assessed for the maximally exposed individual resident (MEIR) in the Project area over a 30-year exposure duration (which characterizes the maximum residency tendency in California). The Point of Maximum Impact (PMI) was also determined. The MEIR is the location of the resident expected to have the highest exposure to TACs. The PMI corresponds to the location where the highest concentration of TACs is expected. Residential risk calculations account for presumed sensitivity to carcinogens and differences in intake rates for the third trimester to birth, birth to two-years, two-years to nine-years, two-years to 16-years, 16-years to 30-years, and 16-years to 70 years age bins. Concentrations were modeled using AERMOD and then input into CARB's Hot Spots and Reporting Program (HARP) Health Risk Assessment Standalone Tool (RAST) to calculate cancer risk based on the methods and recommendations found in the OEHHA HRA Guidelines. The RAST intake rate percentile was set to the 95th percentile and the fraction of time at home factor was applied to age bins less than 16 years. The resulting annual average DPM concentration and corresponding excess cancer risk at the MEIR are summarized in *Table 5.5-18*, *Estimated Cancer Risk at PMI and MEIR (Uncontrolled I-210 DPM Emissions)*. The MEIR is located at ground level, along the Plan area's northern border, toward the western side. The PMI is located off-site, between Evergreen Avenue and I-210 in an area that would not be occupied by residential receptors; cancer risks at this location, therefore, were not estimated.

Modeling Results. The results of the modeling indicate that, in general, DPM concentrations are higher on the northern and western side of the project area. This is due to the proximity of the northern project boundary to I-210. In general, the estimated cancer risks along the northern project area boundary range from 21.9 to 40.7, while risks along the southern project area boundary range from 5.5 to 6.5 (see Appendix E for more details). As mentioned previously, the MEIR is located at ground level, along the Plan area's northern border, toward the western side. *Table 5.5-18* summarizes the location, annual average concentration, and calculated excess cancer risk at the modeled MEIR location.

Table 5.5-18
Estimated Cancer Risk at PMI, MEIR, and MEIR (Uncontrolled I-210 DPM Emissions)

Receptor	UTM Location		Annual Average DPM Concentration ($\mu g/m^3$)	Excess Cancer Risk (per million population)	Threshold Exceeded?
	Easting	Northing			
PMI(A)	410677.47	3777574.86	0.10542	--	--
MEIR	410726.00	3777549.20	0.05970	40.7	Yes

Source: MIG 2019 (see Appendix E)
The PMI is located in Caltrans right of way and is not an occupied nor a potential receptor location. Therefore, cancer risk was not calculated.

As shown in *Table 5.5-18*, site specific cancer risks are much lower than CARB's MATES IV results, but uncontrolled DPM emissions would generate cancer risks in the project area that are above the SCAQMD recommended cancer risk thresholds (10 cases of cancer per a population of one million) by a factor of approximately four as a worst case. This would occur at ground level along the northern portion of the project area. Potential risks in the southern portion of the project area, however, would be much lower (by approximately one-eighth) and below the recommended thresholds (6.5 cases in one million). Without control of DPM emissions, therefore, vehicle emissions from I-210 could result in an adverse impact on sensitive receptors in the project area, and the addition of DPM emissions to the area from project vehicle trips could exacerbate this condition. It is important to note, that the above estimates are conservative and are likely to overestimate potential risks for the following reasons:

1. The lifetime exposure for a sensitive receptor was assumed to begin in the third trimester (i.e., in the womb) in the project area, and it was assumed that sensitive receptors would then continue to be exposed through the infant stage and into early childhood. Risks to adult receptors (receptors older than 16 at the time of initial

exposure) would be much lower (approximately 80% lower and less than the SCAQMD carcinogenic risk threshold).

2. The HRA estimates are based on near continuous exterior exposure at the property line locations. Concentrations within the interior of the property where receptors would be located would be lower.
3. Because the project is an infill, transit-oriented development, it would result in an overall reduction of vehicle miles traveled by resident and workers in the City of Duarte, thereby reducing overall traffic in the city and along I-210. This is one of CARB's strategies for reducing air pollution near high-volume roadways (CARB 2017).
4. The HRA does not take into account reductions in PM that would be achieved by mechanically supplied air systems. Specifically, the 2019 amendments made to the California Building Standards Code, set to go into effect on January 1, 2020, would require high-rise[6] multifamily dwellings within 500 feet of busy roadways (more than 100,000 ADT) to use HVAC systems and filters with a Minimum Efficiency Rating Value (MERV) of 13. MERV-13 filters can remove up to 90% of particles less than 10 microns in size, which would result in a corresponding reduction in exposure to PM_{10} and associated adverse health risks by 90%. While the California Building Standards code would require these HVAC systems to be appropriately designed and sized for individual dwelling units, the long-term air quality benefit and risk reduction realized by these enhanced filtration systems would be dependent, in part, on individual owners and occupants of each dwelling unit (due to system maintenance and filter replacement requirements). Nonetheless, less efficient filters, such as a MERV-8, can remove up to 70% of particles less than 10 microns in size, which would result in a corresponding reduction in exposure to PM10 and associated adverse health risks by 70%. A 70% reduction in modeled PM concentrations (i.e., indoor air quality levels) would reduce risks, but not to levels that are below the SCAQMD threshold at the MEIR location (a 70% reduction would result in a cancer health risk of approximately 12.2 at the MEIR location).

For the reasons outlined above, it is reasonable to assume that installation of HVAC systems with MERV-13 filters would reduce cancer risk to below SCAQMD significance thresholds. For full effectiveness, the HVAC system must be in operation at all times while residents are inside their unit and must be properly maintained. In addition, HVAC systems may not be a California Building Code requirement for all new structures in the Project area. Therefore, to ensure indoor air quality concentrations remain at or are lower than the estimates presented in *Table 5.5-18* for all residents in the Project area, Mitigation Measure AIR-3 requires the installation of HVAC systems in all new residential buildings with a MERV of 13 and would ensure that HVAC systems are maintained on a regular basis and that filters are replaced as required to ensure their effectiveness. With the implementation of this mitigation measure, buildout under the project would not exacerbate cancer risk associated with DPM emissions, including from I-210.

Non-Cancer Risks. The chronic non-cancer hazard quotient is the calculated pollutant-specific indicator for risk of developing an adverse health effect on specific organ system(s) targeted by the identified TAC, in this case, DPM. The potential for exposure to result in chronic non-cancer effects is evaluated by comparing the estimated annual average air concentration to the chemical-specific, non-cancer chronic reference exposure levels (RELs). The REL is a

[6] A high-rise building is defined by the California Building Code as any building used for human occupancy greater than 55 feet above the lowest level of Fire Department vehicle access. For the purposes of compliance with prescriptive indoor air quality requirements, the building energy efficiency standards consider a high rise residential building to be any building with four or more habitable stories.

concentration below which there is assumed to be no observable adverse health impact to a target organ system. When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient. The annual average air concentration is divided by the REL to calculate a hazard quotient. To evaluate the potential for adverse chronic non-cancer health effects from simultaneous exposure to multiple chemicals, the hazard quotients for all chemicals are summed, yielding a hazard index. The chronic REL for DPM was established by OEHHA as 5 μg/m³. There is no acute REL for DPM. Chronic non-cancer risks are considered significant if a project's TAC emissions result in a hazard index greater than or equal to one. Non-cancer risk equations are summarized in *Table 5.5-19*, *Non-Cancer Risk Equation*.

Table 5.5-19
Non-Cancer Risk Equation

Chronic Hazard Quotient:	$HI_{DPM} = \frac{C_{DPM}}{REL_{AAC}}$
Where:	
HI_{DPM} =	Hazard Index; an expression of the potential for non-cancer health effects.
C_{DPM} =	Annual average DPM concentration (μg/m³).
REL_{DPM} =	Reference exposure level (REL) for DPM; the DPM concentration at which no adverse health effects are anticipated.

Existing sensitive receptors are exposed to air pollution associated with motor vehicles travelling on I-210, located adjacent to the project area. As shown in *Table 5.5-18*, the annual average DPM concentration associated with vehicle emissions along I-201 at the PMI is 0.10542, which yields a chronic hazard quotient of 0.02, and is less than the SCAQMD threshold of 1.0. As indicated above, the PMI is not an occupied receptor location; thus, the calculated hazard quotient at all other receptor locations would be less than 0.02 and less than the SCAQMD threshold of 1.0.

Operational Emissions – Criteria Air Pollutant Emissions

Criteria Air Pollutant Emissions. As described in Section 5.5.1, both the U.S. EPA and CARB regulate common air pollutants on the basis of human health and/or environmental criteria, and most commonly regulated air pollutants including NO_X, PM, CO, etc. can cause adverse human health effects. As shown in *Table 5.5-13*, the potential emissions of NO_X, CO and PM occurring with build out of the Specific Plan would not exceed SCAQMD-recommended localized significance thresholds. These thresholds 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. In developing the CAAQS and NAAQS, the U.S. EPA and CARB considered scientific evidence linking exposure to air pollutants to health risks. Although each individual's health characteristics, environment, and pre-disposition to adverse respiratory health effects is different, compliance with the CAAQS and NAAQS is intended to protect the most sensitive individuals. Since the amount of emissions (in terms of pounds per day) occurring under the Specific Plan would not exceed SCAQMD LSTs, it is reasonable to assume these emissions levels would not result in significant local adverse health impacts.

As shown in *Table 5.5-12*, the potential emissions of VOC, NOx, CO, SOx, and PM occurring with build out of the Specific Plan would not exceed SCAQMD-recommended regional significance thresholds. Although implementation of the Specific Plan would increase criteria air pollutant emissions within the SCAB, it is not possible, at this time to estimate, what the adverse health effects associated with this mass increase in criteria air pollutant emissions would be for several reasons. First, to estimate potential adverse health effects from regional emissions (e.g., ozone), it is necessary to have information on the sources of the emissions location, velocity of emissions, the meteorology and topography of the area, and the location of receptors exposed to the emissions (SCAQMD 2015b). While the general nature of the emissions sources occurring with implementation of the Specific Plan is known (i.e., area source, energy source, mobile source, etc.), the specific location of these sources within the plan area is not known, nor is other information, including source emission rate, exit velocity, operating characteristics (e.g., daytime or nighttime, seasonal or steady-state), etc. In addition, as shown in *Table 5.5-12*, approximately 70% of the mitigated NO_X emissions estimated to occur with buildout of the Specific Plan would be from mobile sources (i.e., vehicle trips) that would potentially travel on numerous local and regional roadways throughout the plan area and beyond that would be subject to varying meteorological and topographical influences.

Second, the SCAQMD has stated (SCAQMD 2015b, pgs. 10-11):

> "For the so-called criteria pollutants, such as ozone, it may be more difficult to quantify health impacts . . . It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources . . . Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes . . . However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NOx by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_X or VOC emissions from relatively small projects"

Although it is not possible to specifically quantify the adverse health effects that may or may not occur due to the increase in emissions (e.g., NOx) that would occur with implementation of the Specific Plan, the SCAQMD has also stated (SCAQMD 2015b, pgs. 13-14):

> "A project emitting only 10 tons per year of NOx or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NOx with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission."

The emissions modeling conducted for the project indicates implementation of the Specific Plan would increase NOx and VOC emissions by approximately 7.5 and 5.9 tons per year, respectively, which is approximately 2.5 and 4.1 tons per year less than the 10 tons per year referenced in the above SCAQMD statement, respectively (see Appendix E). Given that implementation of the Specific Plan would not result in criteria air pollutant emissions that exceed the aforementioned 10 tons per day for NOx and VOC, and that emissions would be below SCAMQD LSTs, this impact is considered to be less than significant.

Mitigation Measures

Mitigation Measure AIR-3: For all new residential units in the project area, the developer shall install, and owner maintain, HVAC systems with air filters that meet or exceed a Minimum Efficiency Rating Value (MERV) of 13 as determined by ASHRAE Standard 52.2 (a Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size). The owner and/or occupant or other designated representative of the residential unit shall maintain and replace air filters according to the manufacturer's specifications.

Requirements and Timing: This measure shall be printed on construction drawings and included as a requirement of the construction contract for new residential buildings. This measure shall also be recorded in a Notice to Property Owner for the Duarte Station Specific Plan units and for each new residential property within the Project area.
Monitoring: City Planning staff shall confirm that HVAC units and MERV-13 filters (or better) are installed in accordance with this measure prior to final sign off on construction for all new residential units. City Planning staff shall also review and approve of the Notice to Property Owner language and ensure recordation prior to final sign-off on construction of new residential units in the project area.

Level of Significance: Less than significant with mitigation incorporated.

ODORS

IMPLEMENTATION OF THE PROPOSED PROJECT COULD RESULT IN EMISSIONS (SUCH AS THOSE LEADING TO ODOR) ADVERSLEY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE.

Impact Analysis. While odors do not present a health risk of themselves, they are often considered a nuisance by people who live, work, or otherwise are located near outdoor odor sources. According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints include agricultural operations, wastewater treatment plants, landfills, and certain industrial operations (such as manufacturing uses that produce chemicals, paper, etc.). The proposed Specific Plan does not support such sources, and there are no such sources in proximity of the Plan area. The City's prohibits the production of odors that would otherwise be dangerous, injurious, noxious, or otherwise objectionable, and enforces this requirement through Municipal Code Section 19.50.090.

The proposed Specific Plan would increase residential development within the City, including mixed-use residential development that could be located close to retail, restaurant, and other commercial land uses that may generate localized sources of odors that may or may not be objectionable to nearby residential land uses; however, the Specific Plan in and of itself does not permit or authorize any new, major sources of potential odors (e.g., wastewater treatment plant), and odor impacts would be less than significant with standard environmental review practices and enforcement of Municipal Code Section 19.50.090.

5.5.5 CUMULATIVE IMPACTS

Table 4-1, *Cumulative Projects List*, identifies the related projects and other possible development in the area determined as having the potential to interact with the proposed project to the extent that a significant cumulative effect may occur. The following discussions are included per topic area to determine whether a significant cumulative effect would occur.

SHORT-TERM CONSTRUCTION AIR EMISSIONS

SHORT-TERM CONSTRUCTION ACTIVITIES ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD RESULT IN AIR POLLUTANT EMISSION IMPACTS OR EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS.

Impact Analysis: In developing its CEQA significance thresholds, the SCAQMD considered the emission levels at which a project's individual emissions would be cumulatively considerable (SCAQMD 2003b; page D-3). The SCAQMD considers projects that result in emissions that exceed its CEQA significance thresholds to result in individual impacts that are cumulatively considerable and significant. As discussed in the preceding discussion, construction in the Plan area would not result in criteria air pollutant emissions that exceed regional or LST thresholds after the implementation of Mitigation Measure AIR-2A, which would reduce VOC emissions from architectural coatings to levels that are below applicable SCAQMD regional thresholds. Therefore, the proposed project would not generate construction criteria air pollutant emissions that are cumulatively considerable. This impact would be less than significant with mitigation incorporated.

Mitigation Measures

Refer to Mitigation Measure AIR-2A. No additional mitigation measures are required.

LONG-TERM OPERATIONAL AIR EMISSIONS

IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD RESULT IN SIGNIFICANT IMPACTS PERTAINING TO OPERATIONAL AIR EMISSIONS.

Impact Analysis: In developing its CEQA significance thresholds, the SCAQMD considered the emission levels at which a project's individual emissions would be cumulatively considerable (SCAQMD 2003b; page D-3). The SCAQMD considers projects that result in emissions that exceed its CEQA significance thresholds to result in individual impacts that are cumulatively considerable and significant. As discussed in the preceding discussion, operation of the land uses proposed in the Specific Plan could result in a potentially significant impact with regard to NOx emissions. The City would require applicants in the plan area comply with Mitigation Measure AIR-2B, which requires residential structures be constructed such that no more than 60 percent of units have fireplaces. Adherence to this mitigation measure would reduce NOx emissions to levels that are below the SCAQMD regional thresholds. Therefore, the proposed project would not generate operational criteria air pollutant emissions that are cumulatively considerable. This impact would be less than significant with mitigation incorporated.

Mitigation Measures

Refer to Mitigation Measure AIR-2B. No additional mitigation measures are required.

5.5.6 SIGNIFICANT UNAVOIDABLE IMPACTS

With implementation of the proposed Duarte Station Specific Plan, significant unavoidable impacts would occur for:

- Plan Consistency - exceedance of growth assumptions in the SCAQMD *2016 AQMP*.

All other air quality impacts associated with implementation of the proposed Duarte Station Specific Plan are either at less than significant levels or can be mitigated to less than significant levels.

If the City of Duarte approves the proposed Duarte Station Specific Plan, the City shall be required to cite their findings in accordance with *CEQA Guidelines* Section 15091 and prepare a Statement of Overriding Considerations in accordance with *CEQA Guidelines* Section 15093.

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List of Acronyms, Abbreviations, and Symbols	
Acronym / Abbreviation	**Full Phrase or Description**
°C	Degrees Celsius
°F	Degrees Fahrenheit
µg/m3	Micrograms per Cubic Meter

List of Acronyms, Abbreviations, and Symbols	
Acronym / Abbreviation	**Full Phrase or Description**
2016 RTP/SCS	2016-2040 Regional Transportation Plan/Sustainable Communities Strategy
AADT	Annual Average Daily Trips
AB	Assembly Bill
AQMP	Air Quality Management Plan
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CO	Carbon Monoxide
CPF	Cancer Potency Factor
CRP	Coating Restriction Plan
DPM	Diesel Particulate Matter
GHG	Greenhouse Gas
GVWR	Gross Vehicle Weight Rating
H_2S	Hydrogen Sulfide
HAP	Hazardous Air Pollutant
HARP	Hot Spots and Reporting Program
HESIS	Hazard Evaluation System and Information Service
HRA	Health Risk Assessment
IARC	International Agency for Research on Cancer
LOS	Level of Service
LST	Localized Significance Threshold
MATES IV	Multiple Air Toxics Exposure Study in the South Coast Air Basin
MEIR	Maximally Exposed Individual Resident
MERV	Minimum Efficiency Rating Value
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NOA	Naturally Occurring Asbestos
NOx	Nitrous Oxides
NTP	U.S. National Toxicology Program
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
PM	Particulate Matter
PM_{10}	PM with an Aerodynamic Diameter Between 2.5 and 10 Microns
$PM_{2.5}$	PM with an Aerodynamic Diameter Smaller Than 2.5 Microns
PMI	Point of Maximum Impact
PPM	Parts per Million
RAST	Health Risk Assessment Standalone Tool
REL	Reference Exposure Level
ROG	Reactive Organic Gases

List of Acronyms, Abbreviations, and Symbols	
Acronym / Abbreviation	**Full Phrase or Description**
RTP	Regional Transportation Plan
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_4^{2-}	Sulfates
SOx	Sulfur Oxides
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
TIS	Transportation Impact Study
U.S. EPA	U.S. Environmental Protection Agency
VMT	Vehicle Miles Travelled
VOC	Volatile Organic Compounds

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