3.3 AIR QUALITY, GREENHOUSE GAS EMISSIONS, AND HEALTH RISK ASSESSMENT

This section provides an overview of the existing air quality conditions at the Proposed Project site and surrounding region, the regulatory framework, an analysis of potential air quality impacts that would result from implementation of the Proposed Project, and identification of mitigation measures. Other issues related to air emissions covered in this chapter include greenhouse gas (GHG) emissions, and the assessment of emissions related to air quality health risks (Health Risk Assessment or HRA).

Intermittent (short-term construction emissions that occur from activities, such as site-grading paving) and long-term impacts related to the operation of the Proposed Project are evaluated in this chapter. The analysis focuses on daily and annual emissions from construction and operations (mobile, area, stationary, and fugitive sources) activities. This air quality analysis is consistent with the methods described in the South Coast Air Quality Management District (SCAQMD) *CEQA Air Quality Handbook*.

The air quality analysis includes a review of criteria pollutant emissions such as carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), volatile organic compounds (VOC) as reactive organic gases (ROG), particulate matter less than 10 micrometers (PM_{10}), particulate matter less than 2.5 micrometers ($PM_{2.5}$), and lead (Pb). The HRA addresses the diesel particulate matter (DPM) emissions from on-site equipment and haul trucks and crystalline silica from fugitive dust (material handling and unpaved roads). An assessment of GHG emissions is also included.

Air quality models used to estimate air quality impacts include:

- California Air Resources Board's (CARB) EMFAC2011[1]emissions inventory model. EMFAC2011 is the latest emission inventory model that calculates emission inventories and emission rates for motor vehicles operating on roads in California. This model reflects CARB's current understanding of how vehicles travel and how much they emit. EMFAC2011 can be used to show how California motor vehicle emissions have changed over time and are projected to change in the future.
- CARB OFFROAD2011[2] emissions inventory model. OFFROAD2011 is the latest emission inventory model that calculates emission inventories and emission rates for off-road equipment such as loaders, excavators, and off-road haul trucks operating in California. This model reflects CARB's current understanding of how equipment

[1] CARB EMFAC2011 User's Guide, December 20, 2012, http://www.arb.ca.gov/msei/modeling.htm
[2] CARB OFFROAD2011 Instructions, http://www.arb.ca.gov/msprog/ordiesel/info_1085/oei_write_up.pdf

operates and how much they emit. OFFROAD2011 can be used to show how California off-road equipment emissions have changed over time and are projected to change in the future.

- CALEEMod (California Emissions Estimator Model Version 2013.2.2)[3] land use emissions model estimates construction emissions, as well as operational emissions from land development projects.

3.3.1 EXISTING ENVIRONMENT

The Proposed Project is located in Los Angeles County within the South Coast Air Basin (Basin). The Basin is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties.

Climate

In general, Southern California has a warm, dry Mediterranean climate; hot in the summer and mild in the winter. Temperatures are cooler near the coast and hotter near inland areas. Most of the precipitation occurs as rain during the winter months, although rain showers are common during the summer in higher-elevation desert areas. Average annual precipitation is approximately 19 inches and temperatures reach 90 degrees Fahrenheit 100 days of the year on average. August daily highs average 95 degrees while daily lows average 64 degrees Fahrenheit. January typically exhibits average daily highs of 68 degrees and average daily lows of 43 degrees Fahrenheit. The predominant wind directions are either out of the northwest or southeast. Gusts greater than 15 miles per hour occur infrequently, less than two percent of the time.

Basin climate increases the potential to create air pollution problems. Air quality within the Basin generally rates from fair to poor. Sinking, or subsiding, air from the Pacific High Pressure System creates a temperature inversion (known as a subsidence inversion), which acts as a lid to vertical movement of air masses and dispersion of pollutants. The lower bound of this inversion at any given time is known as the “mixing height.” Restricted maximum mixing heights are 3,500 feet above sea level or less. Weak summertime pressure gradients suppress winds and further limit horizontal dispersion of pollutants in the mixed layer below the subsidence inversion. Poorly dispersed anthropogenic (human-made) emissions, combined with strong sunshine, lead to photochemical reactions that create ozone (O_3) in this surface layer. Daytime onshore air flow (i.e., sea breeze) and nighttime offshore flow (i.e., land breeze) are quite common in Southern California. The sea breeze helps to moderate daytime temperatures, and leads to air pollutants being blown out to sea at night and returning to land the following day.

[3] CALEEMod User’s Guide, July 2013, http://www.caleemod.com/

Existing Air Quality in the Study Area Vicinity

The SCAQMD maintains a network of monitoring stations within Los Angeles County that monitor air quality and compliance with applicable ambient standards. CO, O_3, nitrogen dioxide (NO_2), PM_{10} and $PM_{2.5}$ data from the Azusa air quality monitoring station, located approximately two miles northeast of the Proposed Project, were evaluated. This monitoring data for 2010 through 2012 from the Azusa air quality monitoring station is summarized in **Table 3.3-1 Air Quality Data Summary**. As shown, the nearby monitoring station measured violations of the ozone, PM_{10} and $PM_{2.5}$ standards during 2010 through 2012. There were no violations of the standards for NO_2 and CO.

Table 3.3-1 Air Quality Data Summary (2010 - 2012)

Pollutant	Monitoring Data by Year			
	Standard[a]	**2010**	**2011**	**2012**
Ozone				
Highest 1 Hour Average (ppm)[b]	0.09	**0.104**	**0.111**	**0.134**
Days over State Standard		**5**	**13**	**10**
Highest 8 Hour Average (ppm)[b]	0.075	**0.075**	**0.082**	**0.079**
Days over National Standard		**3**	**12**	**18**
Nitrogen Dioxide				
Highest 1 Hour Average (ppm)[b]	0.180	0.077	0.080	0.072
Days over State Standard		0	0	0
Highest 1 Hour 98th percentile (ppm)[b]	0.100	0.060	0.065	0.062
Days over National Standard		0	0	0
Annual Average ($\mu g/m^3$) [b]	0.030/0.053	0.019	0.019	0.020
Carbon Monoxide				
Highest 1 Hour Average (ppm)[b]	9.0	3.0	2.3	2.6
Days over State Standard		0	0	0
Highest 8 Hour Average (ppm)[b]	20	1.3	1.4	1.2
Days over State Standard		0	0	0
Particulate Matter (PM_{10})				
Highest 24 Hour Average ($\mu g/m^3$)[b]	50	**70**	**65**	**78**
Days over State Standard		**5**	**9**	**6**
State Annual Average ($\mu g/m^3$) [b]	20	**29.8**	**32.7**	**30.3**
Particulate Matter ($PM_{2.5}$)				
Highest 24 Hour Average ($\mu g/m^3$)[b]	35	**35.4**	**26.9**	**39.6**
Days over National Standard		**1**	**0**	**1**
State Annual Average ($\mu g/m^3$)[b]	12	**10.9**	**11.4**	**11.0**

NOTES: Values in **bold** are in excess of at least one applicable standard.

a. Generally, state standards and national standards are not to be exceeded more than once per year.
b. ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
c. PM_{10} is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.

Source: USEPA (http://www.epa.gov/air/data/) CARB Air Quality Data Statistics (http://www.arb.ca.gov/adam/welcome.html), 2010–2012.

The following provides a brief summary of the potential health and welfare effects and typical sources of each of the criteria air pollutants and air toxics.

Criteria Air Pollutants

"Criteria" air pollutants refer to those air pollutants for which the United States Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) under the Federal Clean Air Act (CAA), including CO, NO_x, SO_2, PM_{10}, $PM_{2.5}$, O_3 and lead.

Ozone (O_3)

O_3 is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. O_3 is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x. ROG and NO_x are known as precursor compounds for O_3. Substantial ozone production generally requires O_3 precursors to be present in a stable atmosphere with strong sunlight for approximately three hours. O_3 is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. O_3 concentrations tend to be higher in the late spring, summer, and fall, when long sunny days combine with regional air subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds.

Carbon Monoxide (CO)

CO is a non–reactive pollutant that is a product of incomplete combustion of organic material, and is mostly associated with motor vehicle traffic, and in wintertime, with wood–burning stoves and fireplaces. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground–level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces its oxygen–carrying capacity, resulting in reduced levels of oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s when CO levels were regularly exceeded throughout California, but in more recent years, CO measurements and modeling are not a priority in most California air districts due to the retirement of older vehicles, reduced CO emissions in newer vehicles, and improvements to fuels.

Nitrogen Oxides (NO_x)

When combustion temperatures are extremely high, as in aircraft, truck and automobile engines, atmospheric nitrogen combines with oxygen to form various oxides of nitrogen. Nitric oxide

(NO) and NO_2 are the most significant air pollutants generally referred to as NO_x. Nitric oxide is a colorless and odorless gas that is relatively harmless to humans, quickly converts to NO_2 and can be measured. NO_2 has been found to be a lung irritant capable of producing pulmonary edema. Inhaling NO_2 can lead to respiratory illnesses such as bronchitis and pneumonia.

Volatile Organic Compounds (VOCs)/Reactive Organic Gases (ROGs)

Volatile organic compounds (VOC) means any compound of carbon, excluding carbon monoxide, carbon dioxide (CO_2), carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and thus, a precursor of ozone formation. ROGs are any reactive compounds of carbon, excluding methane, CO, CO_2 carbonic acid, metallic carbides or carbonates, ammonium carbonate, and other exempt compounds. The terms VOC and ROG are often used interchangeably and the terminology varies from air district to air district.

VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects. VOCs are emitted by a wide array of products numbering in the thousands. Examples include: paints and lacquers, paint strippers, cleaning supplies, building materials and furnishings as well as fuel storage and use.

VOCs can cause eye, nose, and throat irritation; headaches, loss of coordination, nausea; and damage to liver, kidney, and central nervous system. Some organics can cause cancer in animals; some are suspected or known to cause cancer in humans. The ability of organic chemicals to cause health effects varies greatly from those that are highly toxic, to those with no known health effect. As with other pollutants, the extent and nature of the health effect depends on many factors including level of exposure and length of time exposed. Eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment are among the immediate symptoms that some people have experienced soon after exposure to some organics.

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM_{10} and $PM_{2.5}$ consists of airborne particles that measure 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs, causing adverse health effects. Particulate matter in the atmosphere results from many kinds of dust– and fume–producing industrial and agricultural operations, fuel combustion, wood burning stoves and fireplaces, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition, construction activities, and mining, are more local in nature, while others, such as vehicular traffic and wood burning stoves and fireplaces, have a more regional effect.

Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates can also damage materials and reduce visibility. Dust comprised of large particles (diameter greater than 10 micrometers or µm) settles out rapidly and is easily filtered by

human breathing passages. This dust is of concern more as a soiling nuisance rather than a health hazard. The remaining fractions, PM_{10} and $PM_{2.5}$, are a health concern particularly at levels above the Federal and State ambient air quality standards. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health, because these particles are so small and thus are able to penetrate to the deepest parts of the lungs.

Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Mortality studies since the 1990s have shown a statistically significant direct association between mortality (premature deaths) and daily concentrations of particulate matter in the air. Despite important gaps in scientific knowledge, a comprehensive evaluation of the research findings provides persuasive evidence that exposure to fine particulate air pollution has adverse effects on cardiopulmonary health. The CARB has estimated that achieving the ambient air quality standards for PM_{10} could reduce premature mortality rates by 6,500 cases per year.

Sulfur Dioxide (SO_2)

SO_2 is a combustion product of sulfur or sulfur–containing fuels such as coal and diesel. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter, and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain. The maximum SO_2 concentrations recorded in the project area are well below federal and State standards; as a result, the area is in attainment status with both federal and State SO_2 standards.

Lead

Lead has a range of adverse neurotoxin health effects, and was released into the atmosphere via leaded gasoline products. The phase–out of leaded gasoline in California has resulted in dramatically decreased levels of atmospheric lead. Metal processing is currently the primary source of lead emissions in the SCAB. The highest concentrations of lead in air are generally found near lead smelters and general aviation airports; where piston aircraft use leaded fuel. Other stationary sources that generate lead emissions include waste incinerators, utilities, and lead-acid battery manufacturers.

Toxic Air Contaminants (TACs)

Non-criteria air pollutants or toxic air contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 240 compounds, including particulate emissions from diesel-fueled engines and asbestos.

In August of 1998, CARB identified particulate emissions from diesel-fueled engines as TACs. CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*.[4] The document represents a proposal to reduce diesel particulate emissions, with the goal to reduce emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra-low sulfur diesel fuel on diesel-fueled engines.

Diesel particulate matter (DPM) is the most complex of diesel emissions. Diesel particulates, as defined by most emission standards, are sampled from diluted and cooled exhaust gases. This definition includes both solid and liquid material that condenses during the dilution process. The basic fractions of DPM are elemental carbon; heavy hydrocarbons derived from the fuel and lubricating oil and hydrated sulfuric acid derived from the fuel sulfur. DPM contains a large portion of the polycyclic aromatic hydrocarbons (PAH) found in diesel exhaust. Diesel particulates include small nuclei particles of diameters below 0.04 micrometer (µm) and their agglomerates of diameters up to 1 µm. DPM is a major factor in total TAC exposure in California.

California State law defines TACs as air pollutants having carcinogenic effects. A total of 243 substances have been designated as TACs under California law; they include the 187 (federal) Hazardous Air Pollutants (HAPs) adopted in accordance with AB 2728. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources but AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures.

CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* in 2005. The primary goal in developing the *Handbook* was to provide information that would help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. The *Handbook* highlights recent studies that have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities. However, the health risk is greatly reduced with distance from these air pollution sources. For that reason, CARB provided some general recommendations aimed at keeping appropriate distances between sources of air pollution and sensitive land uses, such as residences.

[4] California Air Resources Board. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.* October 2000. http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf

The most comprehensive study on air toxics in the Basin is the Multiple Air Toxics Exposure Study (MATES-III),[5] conducted by the SCAQMD. The monitoring program measured more than 30 air pollutants, including both gas and particulates. The monitoring study was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region based on emissions and weather data. MATES-III found that the average cancer risk in the region from carcinogenic air pollutants ranges from approximately 870 in a million to 1,400 in a million, with an average regional risk of approximately 1,200 in a million. Preliminary results for MATES-IV show that trends in monitored levels air toxics continue to decline, modeled exposures and risks substantially lower compared to MATES III, and DPM remains largest component of air toxics estimated risk.

Silica Crystalline Dust

In 2005, the California Office of Environmental Health Hazard Assessment (OEHHA) added a chronic reference exposure level (REL) for crystalline silica. Silica is a hazardous substance when it is inhaled, and the airborne dust particles that are formed when the material containing the silica is broken, crushed, or sawn pose potential risks. A silica content of the aggregate materials of 78 percent was assumed for this analysis.[6]

City of Irwindale Cancer Study

Due to City concerns about possible cancer risks from the industrial activity in the City, the City funded a study by Soil Water Air Protection Enterprise (SWAPE) in 2013 to evaluate the cancer rates in the City of Irwindale. The effort was in collaboration with the Cancer Surveillance Program. The Cancer Surveillance Program manages a database of all cancer diagnoses, recorded by the patient's residential address within Los Angeles County, and reports these data to the California Cancer Registry. In addition to total cancer cases, four common cancers were evaluated from 2001 through 2010: breast, colon, lung and oropharyngeal, and prostate. Other cancers could not be evaluated for confidentiality reasons, because they occurred in such low numbers. Annual age-adjusted incidence rates were calculated for Irwindale, bordering census tracts, Los Angeles County, and California. Irwindale's rates were then evaluated against the rates of the other three regions.

The cancer assessment found that the Irwindale area has no significant excess of breast, prostate, colon, and lung/oropharyngeal cancers relative to neighboring census tracts, Los Angeles

[5] South Coast Air Quality Management District, Multiple Air Toxics Exposure Study (MATES-III) in the South Coast Air Basin, September 2008, http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iii/mates-iii-final-report

[6] Rhyolite silica content (SiO2) approximately 70 to 78 percent http://www.flashcardmachine.com/civil220-igneous-rocks.html

County, and California. In fact, Irwindale was found to have lower cancer incidence than surrounding census tracts, Los Angeles County, and California.[7]

Odorous Emissions

Though offensive odors from stationary and mobile sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress, generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

3.3.2 REGULATORY SETTING

Air Quality

United States Environmental Protection Agency

The USEPA has established NAAQS for outdoor concentrations of the following "criteria" pollutants: CO, NO_2, O_3, SO_2, and PM_{10}, $PM_{2.5}$, and lead. An ambient air quality standard establishes the concentration above which the pollutant is known to cause adverse health effects to sensitive groups within the population such as children and the elderly. The goal is for localized project effects not to cause or contribute to an exceedance of the standards. Ambient air quality standards are classified as either "primary" or "secondary" standards. Primary standards define levels of air quality, including an adequate margin of safety, necessary to protect the public health. Secondary ambient air quality standards define levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Clean Air Act

Under the federal CAA, USEPA and CARB designate air basins where National Ambient Air Quality Standards (NAAQS) are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there are inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." Areas where air pollution levels persistently exceed the state or national ambient air quality standards are designated "nonattainment." The South Coast Basin portion of Los Angeles County is in nonattainment status for the federal ozone, lead, and $PM_{2.5}$; and in attainment for the federal CO, NO_2, SO_2, and PM_{10}.[8] Federal nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. The South Coast Basin portion of Los Angeles County is in nonattainment status for the State ozone, PM_{10}, and $PM_{2.5}$; and is in attainment status for CO, NO_2, SO_2, and lead.[9]

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[7] Soil Water Air Protection Enterprise, Air Quality and Cancer Incidence Assessment of Irwindale, California, January 2014.
[8] USEPA, The Green Book Nonattainment Areas for Criteria Pollutants, http://www.epa.gov/air/oaqps/greenbk/index.html
[9] CARB, Area Designations Maps/State and National, http://www.arb.ca.gov/desig/adm/adm.htm

California Air Resources Board

The California Air Resources Board (CARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county and regional Air Pollution Control Districts and Air Quality Management Districts. CARB regulates local air quality indirectly by establishing State ambient air quality standards and vehicle emissions and fuel standards; and by conducting research, planning and coordinating activities. California has adopted ambient standards (known as California Ambient Air Quality Standards or CAAQS) that are more stringent than the federal standards for some criteria air pollutants.

California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants. These are shown in **Table 3.3-2 State and National Criteria Air Pollutant Standards, Effects, and Sources**. Under the California Clean Air Act patterned after the CAA, areas have been designated as attainment or nonattainment with respect to the state standards.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development, and the environment. SCAG is the federally designated metropolitan planning organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. As the designated MPO, SCAG is mandated by the federal government to develop and implement regional plans that address transportation, growth management, hazardous waste management, and air quality issues. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG) for the Los Angeles County region, which includes Growth Management and Regional Mobility chapters that form 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 the consistency analysis that is included in the AQMP.

Table 3.3-2 State and National Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 Hour 8 Hour	0.09 ppm 0.07 ppm	– 0.075 ppm	High concentrations can directly affect lungs, causing irritation. Long–term exposure may cause damage to lung tissue.	Formed when reactive organic gases and nitrogen oxides react in the presence of sunlight. Major sources include on–road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide (CO)	1 Hour 8 Hour	20 ppm 9.0 ppm	35 ppm 9.0 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline–powered motor vehicles.
Nitrogen Dioxide (NO2)	1 Hour Annual	0.18 ppm 0.03 ppm	0.10 ppm 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish–brown.	Motor vehicles, petroleum–refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide (SO2)	1 Hour 3 Hour 24 Hour Annual	0.25 ppm – 0.04 ppm –	– 0.5 ppm 0.14 ppm 0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Respirable Particulate Matter (PM10)	24 Hour Annual	50 µg/m3 20 µg/m3	150 µg/m3 –	May irritate eyes and respiratory tract, decreases in lung capacity, cancer, and increased mortality. Produces haze and limits visibility.	Dust and fume–producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind–raised dust and ocean sprays).
Fine Particulate Matter (PM2.5)	24 Hour Annual	– 12 µg/m3	35 µg/m3 15 µg/m3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including nitrogen oxides, sulfur oxides, and organics.
Lead (Pb)	Month Rolling 3 Month	1.5 µg/m3 –	– 0.15 µg/m3	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present sources: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.

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

SOURCE: California Air Resource Board, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, June 4, 2013.

South Coast Air Quality Management District

The SCAQMD has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange County, all of Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The South Coast Air Basin is a sub-region of the SCAQMD jurisdiction. While air quality in this area has improved, the Basin requires continued diligence to meet air quality standards. The SCAQMD has adopted a series of AQMPs to meet the CAAQS and NAAQS. These plans require control technology for existing sources, control programs for area sources and indirect sources, a SCAQMD permitting system designed to allow no net increase in emissions from any new or modified permitted emission sources and transportation control measures.

The SCAQMD adopted a comprehensive AQMP update, the 2007 AQMP for the Basin, on June 1, 2007.[10] The 2007 AQMP outlines the air pollution control measures needed to meet federal health-based standards for O_3 (8-hour standard) by 2024, and $PM_{2.5}$ by 2015. This revision to the AQMP also addresses several State and federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes and new air quality modeling tools. The 2007 AQMP is consistent with and builds upon the approaches taken in the 2003 AQMP for the attainment of the federal O_3 air quality standard but highlights the significant amount of reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under Clean Air Act (CAA).

In February of 2013, the SCAQMD completed the 2012 AQMP which incorporated the latest scientific and technological information and planning assumptions, including the 2012 Regional Transportation Plan/Sustainable Communities Strategy and updated emission inventory methodologies for various source categories.[11] The 2012 AQMP included the new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches.

The 2012 AQMP demonstrates attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 in the Basin through adoption of all feasible measures. The 2012 AQMP also updates the USEPA approved 8-hour O_3 control plan with new measures for NO_x and VOC reductions. The 2012 AQMP also addresses several state and federal planning requirements, incorporating new

[10] South Coast Air Quality Management District. *Final 2007 Air Quality Management Plan*, June 2007. http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/2007-air-quality-management-plan
[11] South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*, February 2013. http://www.aqmd.gov/aqmp/2012aqmp/Final-February2013/index.html

scientific information, primarily in the form of updated emissions inventories, ambient measurements, and new meteorological air quality models.

The SCAQMD has published a *CEQA Air Quality Handbook* that is intended to provide local governments such as the City of Irwindale and the County of Los Angeles, with guidance for analyzing and mitigating project-specific air quality impacts. The *Handbook* provides standards, methodologies, and procedures for conducting air quality analyses.

The SCAQMD adopts rules and regulations to implement portions of the AQMP. For the Proposed Project, the relevant rules and regulations include:

- **Rules 201 and 203 (Permits to Construct and Operate)**: These rules require that owners of applicable construction or operation equipment obtain written permits from the SCAQMD prior to construction and operation.
- **Rule 401 (Visible Emissions)**: This rule states that a person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is above certain opacity levels.
- **Rule 402 (Nuisance)**: This rule states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
- **Rule 403 (Fugitive Dust)**: This rule requires fugitive dust sources to implement Best Available Control Measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM10 emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.
- **Rule 1157 (PM10 Emission Reductions from Aggregate and Related Operations)**: This rule provide measures to reduce PM10 emissions from aggregate and other operations including but not limited to, limits on opacity of fugitive emissions, street sweepers, track-out controls, and recordkeeping.

Greenhouse Gases

Greenhouse Gases and Global Climate Change

Greenhouse gases (GHG) include both naturally occurring and anthropogenic gases that trap heat in the earth's atmosphere. GHGs include but are not limited to carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydro fluorocarbons (HFC), perfluorocarbons (PFC), nitrogen trifluoride (NF_3), and sulfur hexafluoride (SF_6).

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun and re-radiated from the Earth’s surface as it is reflected back into the atmosphere, roughly analogous to the retention of heat energy in a greenhouse. The accumulation of GHGs has been implicated as a driving force for Global Climate Change. Definitions of climate change vary between and across regulatory authorities and the scientific community, but in general can be described as the changing of the earth’s climate caused by natural fluctuations and the impact of human activities that alter the composition of the global atmosphere. Both natural processes and human activities emit GHGs.

The accumulation of GHGs in the atmosphere regulates the earth's temperature; however, emissions from human activities such as electricity production and motor vehicles have elevated the concentration of GHGs in the atmosphere.

Clean Air Act

The federal CAA requires the USEPA to define national ambient air quality standards (national standards) to protect public health and welfare in the U.S. The CAA does not specifically regulate GHG emissions; however, on April 2, 2007 the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency*, determined that GHGs are pollutants that can be regulated under the CAA. Currently, there are no federal regulations that establish ambient air quality emissions standards for GHGs.

On April 17, 2009, the USEPA Administrator proposed to find that GHGs in the atmosphere threaten the public health and welfare of current and future generations. The Administrator also proposed to find that GHGs from new motor vehicles and new motor vehicle engines are contributing to the concentration of GHGs in the atmosphere. This action is being taken under Section 202(a) of the CAA. The action, if finalized, would not itself impose any requirements on industry or other entities.

The USEPA annually publishes the *Inventory of U.S. Greenhouse Gas Emissions and Sinks* for estimating sources of GHGs that is generally consistent with the IPCC methodology developed in its *Guidelines for National Greenhouse Gas Inventories*.

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

There are currently no State regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

Assembly Bill 1493 (Pavley)

In 2002, then-Governor Gray Davis signed AB 1493 (Chapter 200, Statutes of 2002, amending Section 42823 of the California Health and Safety Code and adding Section 43018.5 to the code). AB 1493 required CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty

trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State."

To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California's existing standards for motor vehicle emissions. The regulations would reduce GHG emissions from California passenger vehicles by about 22 percent by 2012 and about 30 percent by 2016. USEPA denied California's request for the waiver to implement AB 1493 in late December 2007. California filed a suit against USEPA for its decision to deny the CAA waiver. On January 21, 2009, CARB submitted a letter to USEPA Administrator Jackson regarding California's request to reconsider the waiver denial. USEPA approved the waiver on June 30, 2009.

Executive Order S-3-05

Governor Schwarzenegger established Executive Order S-3-05 in 2005, in recognition of California's vulnerability to the effects of climate change. Executive Order S-3-05 set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The executive order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of CalEPA created the California Climate Action Team, made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through state incentive and regulatory programs.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should

be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB must adopt regulations to achieve reductions in GHGs to meet the 1990 emissions cap by 2020.

Senate Bill 1368

SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007. SB 1368 also required California Energy Commission (CEC) to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to California, including imported electricity, must be generated by plants that meet the standards set by CPUC and CEC.

Executive Order S-1-07

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, stated that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least ten percent by 2020. This order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) has been adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

The LCFS would reduce GHG emissions from the transportation sector in California by about 16 million metric tons (MMT) in 2020. The LCFS is designed to reduce California’s dependence on petroleum, create a lasting market for clean transportation technology, and stimulate the production and use of alternative, low-carbon fuels in California.

Senate Bills 1078 and 107 and Executive Order S-14-08

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33 percent renewable power by 2020.

Senate Bill 375

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations. SB 375 requires MPOs to adopt a sustainable community strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in the MPO's regional transportation plan. CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. The first targets were approved in February of 2011 and for the SCAG the per capita emissions reduction target for 2020 is 5 to 10 percent relative to year 2005 emissions. CARB is also charged with reviewing each MPO's SCS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects will not be eligible for funding programmed after January 1, 2012. SCAG developed its SCS to meet the recently approved goals for the region as part of the 2012 Regional Transportation Plan, which was adopted April of 2012.

California Climate Action Registry General Reporting Protocol

The Climate Registry (CR, formally the California Climate Action Registry) was established in 2001 by SB 1771 and SB 527 (Chapter 1018, Statutes of 2000, and Chapter 769, Statutes of 2001, respectively) as a nonprofit voluntary registry for GHG emissions. The purpose of the CR is to help companies and organizations with operations in the state to establish GHG emissions baselines against which any future GHG emissions reduction requirements may be applied. CR is currently encouraging its members to transition to the new regional Climate Registry, a sister organization for reporting throughout North America.

The CR has developed a general protocol and additional industry-specific protocols that provide guidance on how to inventory GHG emissions for participation in the registry. This protocol provides the principles, approach, methodology, and procedures required for participation in the CR. It is designed to support the complete, transparent, and accurate reporting of an organization's GHG emissions inventory in a fashion that minimizes the reporting burden and maximizes the benefits associated with understanding the connection between fossil fuel consumption, electricity use, and GHG emissions in a quantifiable manner.

CARB Climate Change Proposed Scoping Plan

On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's Scoping Plan contains the main strategies California will implement to reduce carbon dioxide equivalent (CO_2e) emissions by 169 MMT, or approximately 30 percent, from the State's projected 2020 emissions level of 596 MMT of CO_2e under a Business as Usual (BAU) scenario; this is a reduction of 42 MMT CO2e, or almost ten percent, from 2002 to 2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.

CARB's Scoping Plan calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors, i.e., transportation, electrical power, commercial and residential, and industrial. CARB used three-year average emissions, by sector, for 2002 to 2004 to forecast emissions to 2020. The measures described in CARB's Scoping Plan are intended to reduce the projected 2020 BAU to 1990 levels, as required by AB 32.

CARB's Scoping Plan also breaks down the amount of GHG emissions reductions CARB recommends for each emissions sector of the state's GHG inventory. CARB's Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e);
- The Low Carbon Fuel Standard or LCFS (15.0 MMT CO_2e);
- Energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems (26.3 MMT CO_2e); and
- A renewable portfolio standard for electricity production (21.3 MMT CO_2e).

CARB's Scoping Plan states that successful implementation of the Plan relies on local governments' land use, planning, and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. CARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. CARB's Scoping Plan does not include any direct discussion about GHG emissions generated by construction activity.

In October of 2013, the CARB submitted the First Update to the Climate Change Scoping Plan for public review and comment. The First Update to the Scoping Plan was approved by the CARB on May 22, 2014, and builds upon the initial Scoping Plan with new strategies and recommendations. The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The First Update defines CARB's climate change priorities for the next five years, and also sets the groundwork to reach long-term goals set forth in Executive Orders S-3-05 and B-16-2012. The Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the initial Scoping Plan. It also evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

In this Update, nine key focus areas were identified (energy, transportation, agriculture, water, waste management, and natural and working lands), along with short-lived climate pollutants, green buildings, and the cap-and-trade program. These key focus areas have overlapping and complementary interests that will require careful coordination in California's future climate and energy policies. These focus areas were selected to address issues that underlie multiple sectors of the economy. As such, each focus area is not contained to a single economic sector, but has far-reaching impacts within many economic sectors.

South Coast Air Quality Management District

On December 5, 2008, the SCAQMD adopted GHG significance thresholds for Stationary Sources, Rules, and Plans where the SCAQMD is lead agency. The threshold uses a tiered approach. The project is compared with the requirements of each tier sequentially and would not result in a significant impact if it complies with any tier.

Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact.

Tier 2 excludes projects that are consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals.

Tier 3 excludes projects with annual emissions lower than a screening threshold.

For industrial stationary source projects, the SCAQMD adopted a screening threshold of 10,000 metric tons (MT) CO2e per year. This threshold was selected to capture 90 percent of the GHG emissions from these types of projects where the combustion of natural gas is the primary source of GHG emissions. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact.

Tier 4 consists of three decision tree options.

Under the first option, the project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. Under the second option, the project would be excluded if it had early compliance with AB 32 through early implementation of CARB's Scoping Plan measures. Under the third option, the project would be excluded if it met sector based performance standards. However, the specifics of the Tier 4, or fourth option were not adopted by the SCAQMD board in order to allow further time to develop the options and coordinate with CARB's GHG significance threshold development efforts.

Tier 5 would exclude projects that implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level.

At the most recent meeting of the SCAQMD GHG working group (September 2010), SCAQMD staff recommended extending the 10,000 MT CO_2e per year industrial project threshold for use by all lead agencies. SCAQMD staff also stated that they are no longer proposing to include a 25,000 MT CO_2e per year maximum emissions requirement for compliance with Tier 4. Staff indicated that they hoped to bring the proposed GHG significance thresholds to the board for their December 2010 meeting; however, this did not occur.

For the Proposed Project, the 10,000 MT CO_2e per year industrial project screening threshold is used as the significance threshold in addition to the qualitative thresholds of significance from section VII of Appendix G to the CEQA Guidelines. The methodology recommends that total construction emissions be amortized over a 30-year period or the project's expected lifetime if it is less than 30 years. Although the SCAMQD's 10,000 MT CO_2e per year screening threshold initially applied to stationary sources, discussions at the last GHG working group meeting indicated that this threshold would be utilized for all industrial related emissions that include both stationary and mobile sources.

Local Sensitive Receptors and Health Risk Assessment

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality.

Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational uses are also considered sensitive, due to the greater exposure to ambient air quality conditions and because the presence of pollution detracts from the recreational experience.

Some land uses are considered more sensitive to changes in air quality than others, depending on the types of population groups and the activities involved. The CARB has identified the

following people as most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and those with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive population groups.

The City of Baldwin Park is adjacent to the site along the north and west sides, and a portion of the south side. The City of West Covina is adjacent south of the site. The Olive Pit is generally bounded by Olive Street to the north, Azusa Canyon Road to the east, Los Angeles Street to the south, and both Phelan Avenue and Park Avenue to the west. A number of light industrial land uses, such as Huy Fong Foods, Pepsi Bottling Group, Decore-active Specialties, and Ready Pac Foods are found to the east and south. Residential land uses are located adjacent north, south, and west.

Sensitive receptors within a quarter-mile of the project site (threshold sited within CARB *Air Quality and Land Use Handbook*[12] as distance of concern) are as follows:

- Single- and multi-family residences to the west and north of the Proposed Project and approximately 100 feet from the Project. Residents are also located within a mobile home park to the south of the Proposed Project along Los Angeles Street.
- Off-site workers within industrial and commercial areas surrounding the project site and along Los Angeles Street and Azusa Canyon Road.
- Ernest Geddes Elementary (240 feet), North Park High School (500 feet), Pleasant View Elementary (690 feet), Jerry Holland Junior High (2,660 feet), and Santa Fe Elementary (2,760 feet).

3.3.3 IMPACT ANALYSIS AND MITIGATION

Methodology

The air quality analysis includes a review of criteria pollutant emissions such as carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), volatile organic compounds (VOC) as reactive organic gases (ROG), particulate matter less than 10 micrometers (PM_{10}), particulate matter less than 2.5 micrometers ($PM_{2.5}$), and lead. The HRA addresses the diesel particulate matter (DPM) emissions from on-site equipment and haul trucks and crystalline silica from fugitive dust (material handling and unpaved roads). An assessment of GHG emissions is also included.

Threshold of Significance

The significance of potential impacts was determined based on State CEQA Guidelines, Appendix G, the SCAQMD Air Quality Significance Thresholds (SCAQMD, 2011). Using

[12] California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005. http://www.arb.ca.gov/ch/handbook.pdf

Appendix G evaluation thresholds, the Proposed Project would be considered to have significant air quality impacts if it were to:

A. Conflict with or obstruct implementation of the applicable air quality plan;

B. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

C. Expose sensitive receptors to substantial pollutant concentrations;

D. Create objectionable odors affecting a substantial number of people;

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

F. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases; or

G. Result in a cumulatively considerable net increase of any nonattainment pollutant, GHG emissions, and/or health impacts (including releasing emissions that exceed quantitative thresholds for O3 precursors).

The significance thresholds and analysis methodologies in the SCAQMD's *CEQA Air Quality Handbook* are used in evaluating the potential project impacts (as identified from Appendix G above) for construction, operations, air toxics, and GHG emissions. These quantitative significance thresholds are described below.

Regional Air Quality

Construction

The project would result in a significant construction air quality impact if regional emissions from the project exceed the significance thresholds set forth in **Table 3.3-3 Air Quality Significance Thresholds** and/or exceed the significance concentration thresholds set forth in **Table 3.3-4 Ambient Air Quality Standards for Criteria Pollutants.**

Operations

The project would result in a significant operational air quality impact if any of the following occur:

A. Regional emissions exceed the significance thresholds set forth in **Table 3.3-3 Air Quality Significance Thresholds** and/or exceed the significance concentration thresholds set forth in **Table 3.3-4 Ambient Air Quality Standards for Criteria Pollutants**.

B. Either of the following conditions occur at an intersection or roadway within one-quarter mile of a sensitive receptor:

1. The project causes an exceedance of the California one-hour or eight-hour CO standards of 20 or 9.0 parts per million (ppm), respectively; or

2. For intersection or roadways where existing CO levels exceed California standards, the incremental increase due to the project is equal to or greater than 1.0 ppm for the one-hour CO standard, or 0.45 ppm for the eight-hour CO standard.

Table 3.3-3 Air Quality Significance Thresholds

Pollutant	Construction	Operation
NOx	100 lbs./day	55 lbs./day
VOC (ROG)	75 lbs./day	55 lbs./day
PM10	150 lbs./day	150 lbs./day
PM2.5	55 lbs./day	55 lbs./day
SO2	150 lbs./day	150 lbs./day
CO	550 lbs./day	550 lbs./day
Lead	3 lbs./day	3 lbs./day

SOURCE: South Coast Air Quality Management District, SCAQMD Air Quality Significance Thresholds, http://www.aqmd.gov/ceqa/hdbk.html

Table 3.3-4 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Period	Pollutant Concentration
CO	1-hour /8-hour	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the attainment standards of 20 ppm (1-hour) and 9 ppm (8-hour).
NO_2	1-hour	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standard 0.18 ppm.
	Annual	0.03 ppm (state) and 0.0534 ppm (federal)
PM_{10}	24-hour	10.4 µg/m^3 (Construction) and 2.5 µg/m^3 (operation)
	Annual	1.0 µg/m^3
$PM_{2.5}$	24-hour	10.4 µg/m^3 (Construction) and 2.5 µg/m^3 (operation)

SOURCE: South Coast Air Quality Management District, SCAQMD Air Quality Significance Thresholds, http://www.aqmd.gov/ceqa/hdbk.html

Toxic Air Contaminants

The Proposed Project would result in a significant air quality impact if the carcinogenic or toxic air contaminants individually or cumulatively are equal to or exceed the maximum individual cancer risk of ten in one million or an acute or chronic hazard index of 1.0.

GHG Emissions

For the Proposed Project, the City is adopting the SCAQMD, 10,000 MT CO_2e per year industrial project screening threshold as the significance threshold in addition to the qualitative thresholds of significance from *Section VII of Appendix G to the CEQA Guidelines*.

THRESHOLD AQ-1

Would Project-related construction activities conflict with or obstruct implementation of the applicable air quality plan (SCAQMD 2012 AQMP, dated February 2013) or violate any air quality standards or contribute substantially to an existing or projected air quality violation of SCAQMD?

Less than Significant Impact with Mitigation

To test if the Project-related construction activities would conflict with the applicable air quality plan, the projected emissions were compared to the significance thresholds. Daily emissions during construction were estimated by applying the mobile-source and fugitive dust emissions factors.

A minimal amount of construction (i.e., access road construction, site preparation, equipment staging, paving) would occur during a 12 month period and would be completed by the end of 2015. Construction-related emissions are expected to be short-term, but may still cause adverse effects on air quality. Construction activities include site preparation, earthmoving, and general construction. Site preparation includes land clearing and grubbing. General construction includes adding improvements such as roadway surfaces and structures. The emissions generated from these construction activities include:

- Dust (including PM10 and PM2.5) primarily from “fugitive” sources (i.e., emissions released through means other than through a stack or tailpipe) such as material handling, material screening, and unpaved surfaces;
- Combustion emissions of criteria air pollutants (ROG, NOx, CO, PM10, and PM2.5) primarily from operation of heavy off-road construction equipment (primarily diesel-operated), portable auxiliary equipment, and construction worker automobile trips (primarily gasoline-operated); and
- Evaporative emissions (e.g., ROG) from asphalt paving.

Construction-related fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. High winds (greater than 10 miles per hour) occur infrequently in the area, less than two percent of the time. In the absence of mitigation, construction activities may result in significant quantities of dust, and as a result, local visibility and PM_{10} concentrations may be adversely affected on a temporary and intermittent basis during construction. In addition, the fugitive dust generated by construction

would include not only PM_{10}, but also larger particles, which would fall out of the atmosphere within several hundred feet of the site and could result in nuisance-type impacts.

It is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for fugitive dust. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site, and maintaining effective cover over exposed areas.

Erosion control measures and water programs are typically undertaken to minimize these fugitive dust and particulate emissions. A dust control efficiency of over 50 percent due to daily watering and other measures (e.g., limiting vehicle speed to 15 mph, management of stockpiles, screening process controls, etc.) was estimated. Application of water reduces fugitive dust emissions by a factor of approximately 34 to 68 percent (per SCAQMD *CEQA Air Quality Handbook*). It is assumed that one water application per day reduces fugitive dust by 34 percent, two water applications per day reduces fugitive dust by 50 percent (CalEEMod provides a value of 55 percent), and three water applications per day reduces fugitive dust by 68 percent (CalEEMod provides a value of 61 percent). Application of chemical dust suppressant annually to unpaved roads provides a control efficiency of 84 percent. Additional measures (e.g., limiting vehicle speed to 15 mph, management of stockpiles, screening process controls, etc.) would allow for a total fugitive dust control efficiency of 75 percent and compliance with SCAQMD Rule 403.

NO_x, ROG, PM_{10}, $PM_{2.5}$, and CO construction emissions for the Proposed Project were estimated for a worst-case day based on maximum crew and truck trips. Emissions are based on pollutant emission factors from EMFAC2011 and OFFROAD2011.

As shown in **Table 3.3-5 Estimated Daily Emissions from Project Construction (pounds)**, the estimated daily emissions for all construction related emissions (including combustion engines and evaporative emissions), would be less than the significance criteria, assuming compliance with Rules 401, 402, 403, and 1157. The available air modeling software (CalEEMOD) assumes compliance with Rule 401, 402, 403 and 1157. Based on that modeling, the estimated daily ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$ emissions would not exceed the SCAQMD threshold and would not conflict with or obstruct implementation of the applicable air quality plan or violate any air quality standards or contribute substantially to an existing or projected air quality violation. Emissions of SO_2 and lead would be less than 0.1 pounds per day and less than the respective significance thresholds.

Table 3.3-5 Estimated Daily Emissions from Project Construction (pounds)

Construction Year	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
2015	6.5	32.5	23.0	8.4	5.0
Significant (Yes or No)?	No	No	No	No	No
SCAQMD Thresholds of Significance	75	100	550	150	55

NOTE: Values in bold are in excess of the applicable SCAQMD significance threshold.
SOURCE: KB Environmental Sciences, Inc., 2014

Table 3.3-5 Estimated Daily Emissions from Project Construction (pounds), which was prepared using CalEEMod software, assumes compliance with Rules 401, 402, 403, and 1157 which are required; without compliance however, nuisance impacts (especially uncontrolled fugitive dust emissions or excessive exhaust from poorly maintained heavy equipment) could occur.

In order to ensure there are no potential impacts that could occur without compliance with Rules 401, 402, 403 and 1157, the City is proposing **MM AQ-1**.

> "The SCAQMD's Localized Significance Threshold (LST) Methodology (revised July 2008) and the LST lookup tables provide the basis for the LST analysis for the project construction. [13] The determination of significance is based on the following items:
>
> - Maximum daily emissions of CO, NOx, PM2.5 and PM10 in pounds per day (lb./day)
> - Distance from the boundary of the proposed project site to the nearest off-site receptor
> - Geographic location of the construction site in terms of district source/receptor area
>
> Table 3.3-5 of the Draft EIR provides the maximum daily emissions of CO, NOx, PM2.5 and PM10 in pounds per day. The distance from the boundary of the proposed construction project site to the nearest off-site receptor[14] is approximately 100 meters. The source receptor

[13] South Coast Air Quality Management District, Localized Significance Threshold Methodology (July 2008), http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds

[14] Receptor locations are off-site locations where persons may be exposed to the emissions from project activities. Receptor locations include residential, commercial and industrial land use areas; and any other areas where persons can be situated for an hour or longer at a time. These other areas include parks, bus stops, and sidewalks but would not include the tops of buildings, roadways, or permanent bodies of water such as, oceans or lakes. For the purposes of a CEQA analysis, the SCAQMD considers a sensitive receptor to be to be a receptor such as residence, hospital, convalescent facility where it is possible that an individual could remain for 24 hours. Commercial and industrial facilities are not included in the definition of sensitive receptor because employees do not typically remain onsite for a full 24 hours, but are present for shorter periods of time, such as eight hours.

area is East San Gabriel Valley. The construction project area is estimated to be two to three acres.

The LST lookup tables allow a user to readily determine if the daily emissions for proposed construction activities could result in significant localized air quality impacts. If the calculated emissions for the proposed construction activities are below the LST emission levels found on the LST lookup tables, then the proposed construction activity is not significant. If the project exceeds any applicable LST when the mass rate look-up tables are used as a screening analysis, then project specific refined air quality modeling is performed. In the event that the project area exceeds five acres, it is recommended that lead agencies perform project-specific air quality modeling for these larger projects. As shown in the following table, the daily construction emissions would be less than the LST, therefore, the proposed construction activities would be less than significant.

Table 3.3-5b Localized Significance Thresholds for Project Construction (pounds/day)

Construction	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	32.5	23.0	8.4	5.0
SCAQMD Localized Significance Thresholds	104	2,445	42	12
Significant (Yes or No)?	No	No	No	No

MM AQ-1

The Applicant shall ensure that contractors implement a fugitive dust control program pursuant to the provisions of SCAQMD Rules 401, 402, 403 and 1157. This program shall include, but not limited to the following:

- Prior to start of the initial on-site construction, the City Engineer shall confirm that the proposed construction plan is in compliance with SCAQMD Rule 403, fugitive dust shall be controlled by the applicable best available control measures listed in Table 1 of Rule 403. “Under SCAQMD Rule 403 – Fugitive Dust, the following provisions apply: 1) the project applicant is required to submit a Rule 403 Large Operation Notification to the Executive Officer; 2) a sign is to be posted near the entrance of the facility with a responsible individual’s name and phone number in case there are any fugitive dust control issues at the site; 3) an onsite supervisor with a current fugitive dust control class certification is also required who is available within 30 minutes to respond any fugitive dust control issue at the site during normal business hours; and 4) the operation shall keep onsite records of specific dust control actions taken.

- Water or a stabilizing agent shall be applied at least three times daily, preferably in the mid-morning, afternoon, and after work is done for the day, to exposed surfaces including graded and disturbed areas in sufficient quantity to prevent generation of dust plumes.
- Track-out shall not extend 25 feet or more from an active operation and track-out shall be removed at the conclusion of each workday. The contractor shall use a gravel apron, 25 feet long by road width, or a pipe-grid track-out control device to reduce mud/dirt track-out from active operations and unpaved truck exit routes.
- A wheel washing system shall be installed and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site.
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered (e.g., with fabric tarps or other enclosures that would reduce fugitive dust emissions) and maintain a freeboard height of 12 inches.
- Traffic speeds on unpaved roads shall be limited to 15 miles per hour.
- Operations on unpaved surfaces shall be suspended when winds exceed 25 miles per hour.
- On-site stock piles shall be covered or watered at least twice per day.
- The Project Applicant shall use street sweepers (using reclaimed water) that comply with SCAQMD Rules 1186 and 1186.1. The street sweepers shall operate for the length of the truck route.
- A publically visible sign shall be posted with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The SCAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

With the implementation of MM AQ-1, the impacts are less than significant. Although the impacts are expected to be less than significant with MM AQ-1, the City has developed and the applicant has agreed to further reduce potential emissions by implementing, MM AQ-2 through AQ-6, which are designed to minimize combustion emissions during construction activities."

MM AQ-2

The construction contractor shall ensure that construction equipment is properly tuned and maintained in accordance with manufacturer's specifications to ensure minimum emissions under normal operations.

MM AQ-3

Electricity from power poles rather than temporary diesel- or gasoline-powered generators shall be used. Drag lines or cutter head dredging shall use electricity from power poles rather than diesel or gasoline powered equipment.

MM AQ-4

Heavy-duty diesel trucks shall be properly tuned and maintained to manufacturers' specifications to ensure minimum emissions under normal operations.

MM AQ-5

Heavy equipment operations shall be discontinued during first and second stage smog alerts.

MM AQ-6

All construction vehicles, both on- and off-site, and construction equipment idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). The construction contractor shall post visible signage within construction equipment operator components notifying equipment operators of the prohibiting against idling in excess of five minutes. The construction contractor shall provide awareness training to equipment operators regarding idling limits.

Based on all of the above, the air quality emissions would not exceed the SCAQMD Air Quality Significance Thresholds for construction in **Table 3.3-3 Air Quality Significance Thresholds**; thus construction activities would not conflict with or obstruct implementation of the applicable air quality plan (SCAQMD 2012 AQMP) or violate any air quality standards or contribute substantially to an existing or projected air quality violation of SCAQMD.

THRESHOLD AQ-2

Would the operation of the Proposed Project conflict with or obstruct implementation of the applicable air quality plan (SCAQMD 2012 AQMP, dated February 2013) or violate any air quality standards or contribute substantially to an existing or projected air quality violation of SCAQMD?

Less than Significant Impact for CO, lead, ROG, SO2, PM10, and PM2.5 emissions

Significant and Unavoidable for NOx emissions

To test if the Project-related operations would conflict with the applicable air quality plan, the Project emissions were compared to the significance thresholds. Operational emissions of criteria pollutants would occur from all of the following, which are separately discussed:

- off-site vehicle emissions (haul trucks and employee traffic),
- onsite idling emissions,
- onsite fugitive dust emissions from material handling, material processing, and unpaved surfaces; and
- onsite heavy duty equipment emissions.

The supporting methodology and assumptions used in the air quality analysis are provided in **Appendix C** of this EIR.

The current project site is an inactive mine site. Thus, there are no baseline activities and all emissions associated with the operation of the Proposed Project are treated as project-related.

Operations

Mining of the existing Olive Pit is expected to yield a minimum of thirty-million tons of recoverable aggregate reserves that meet the quality standards of applicable California governmental agencies. Initially, material would be extracted through dry mining; thereafter, the use of a dredge or other method for extracting material below the water table would be used.

Construction aggregate is the sand, gravel, and crushed rock used in all construction projects. As materials are extracted, it would be transported from the pit to the loading area by off the road haul trucks or conveyor, and subsequently placed in overhead hoppers. On road haul trucks would be loaded at the hoppers through an automated process. The trucks would then proceed from the site to the United Rock Products (URP) processing plant located at 1245 E Arrow Highway in Irwindale. The first phase would include mining the eastern portion of the site, followed by reclamation of this area to create an approximate 32 acre pad suitable for development. Reclamation would involve filling the extraction void with inert fill materials. The second phase would include mining the remainder of the site utilizing both dry and underwater mining processes. The total anticipated production of the extraction operations is estimated to be 32 million tons (21.3 million cubic yards). Average production is anticipated to be 1 million tons of aggregate per year. See the Project Description for further details related to Phase I and II extraction and reclamation operations.

Phase I Extraction and Reclamation

Phase I would encompass the eastern 52 acres of the site. Mining would begin at the toe (bottom) of the existing pit area. Phase I would yield approximately four million tons of material. Material excavated in the pit would be transported up the access road to the loading area by conveyor or off-road haul trucks and subsequently placed in overhead hoppers. Over-the-road haul trucks would be loaded at the hoppers through an automated process. Once loaded, over-the-road haul trucks would proceed approximately three miles to URP's existing processing plant located at 1245 E Arrow Highway in Irwindale. Phase I reclamation would begin at the conclusion of the first mining phase. Backfilling of Phase I would result in an approximate 32-acre pad and would require more than 8 million cubic yards of fill.

Phase II Extraction and Reclamation

Phase II mining would occur simultaneously with Phase I reclamation. Phase II consists of the remaining 137 acres of the site. A 4.7-acre pad would be developed at the base of the pit within the southwest corner of the site and would require approximately 207,600 cubic yards of fill. The

pad would serve as a collection point for aggregates mined in Phase II. During Phase II, all resources that occur above the water table would be mined first using a front end loader or excavator. When the water table is encountered, a dredge or other method adapted for underwater mining (e.g., dragline or long reach excavator) would be used to extract materials. Phase II mining would yield about 28 million tons. Phase II reclamation would commence at the conclusion of Phase II mining or when the mineable aggregate resources have been exhausted at the site.

On-Site Heavy-Duty Equipment Emissions

Operation of the Proposed Project would require the use of heavy-duty equipment, such as excavators, loaders, forklifts, off-road haul trucks. This equipment would be used to load and unload material and otherwise sort and handle material. Emissions from this equipment were estimated using the same approach as construction emissions. Emission factors from the OFFROAD2011 model were used to estimate emissions. All equipment would work during business hours except the road grader, which would work 25 percent of the time. Hours of operation (business hours) are 6 am to 6 pm - 6 days a week (or 306 days per year). Off-road mining equipment would remain onsite and at the bottom of the pit at all times.

Employee Trip Emissions

Vehicular emissions were computed using the CARB's emission factor model, EMFAC2011, to estimate on-road emissions. Employee trips were modeled using the light-duty auto classification. Paved road dust, break wear, and tire wear particulate emissions were also accounted for and included in the analysis using EMFAC2011 factors and methodologies from CARB and the USEPA. The Proposed Project would include approximately five to six employees, each traveling a round trip distance of 15 miles; assuming 306 working days a year (six-day work week, with six holidays).

Offsite Haul Truck Trip Emissions

Vehicular emissions were computed using the CARB's emission factor model, EMFAC2011, to estimate on-road emissions. Haul trucks were modeled using the T7 classification, which is a heavy-heavy duty truck emission factor for public vehicles. Paved road dust, break wear, and tire wear particulate emissions were also accounted for and included in the analysis using EMFAC2011 factors and methodologies from CARB and the USEPA. Assuming 306 working days a year (six-day work week, with 6 holidays), this would result in 262 one-way truck trips a day or 131 round trips. Haul trucks would only be at the loading area during operating hours when picking up a load.

On-Site Haul Truck Idling Emissions

Trucks would idle on the Proposed Project during unloading and during load weighing/financial transaction at the scale house. Idling emissions were also calculated using idling emission factors

from the EMFAC2011 model and California regulations requiring idle limits of five minutes for trucks.

Fugitive Dust Emissions

Fugitive dust emissions were determined for the aggregate processing operations which include screening, material transfer to conveyors, truck loading/unloading as well as the material handling and storage operations. The emission factors were determined using the methodology found in Section 11 – *Mineral Products Industry* and Section 13 – *Miscellaneous Sources* of USEPA's Compilation of Air Pollutant Emission Factors (AP-42). SCAQMD's fugitive dust mitigation measures were applied to the applicable uncontrolled pollutant emission rates. Emissions were based on a material process rate of 200 tons per hour (tons/hour), 3,268 tons per day (tons/day), and one million tons per year. The fugitive dust emissions methodology and assumptions are provided in **Appendix AQ** of this EIR.

The Proposed Project unmitigated emissions are provided in **Table 3.3-6 Estimated Daily Unmitigated Proposed Project Emissions (pounds)**. The worst-case year of operations are expected to be the initial year for ROG, NO_x, PM_{10}, and $PM_{2.5}$ (except CO which would result in the worst case operations during the sixth year of operations) with emissions decreasing as a result of greater emission efficiency as older equipment is replaced with new equipment with the result of regulatory requirements. Notably, the SO_2 and lead emissions are less than 1 pound per day as a result of ultra-low sulfur diesel. Diesel fuel does not contain lead emissions and gasoline fuel is unleaded. The Proposed Project operations would exceed SCAQMD thresholds of significance and be significant for NO_x and PM_{10} emissions.

Table 3.3-6 Estimated Daily Unmitigated Proposed Project Emissions (pounds)

Project Phase	ROG	NOx	CO	PM10	PM2.5
On-site Equipment	8.92	105	48.6	4.24	3.91
Employee Trips	0.01	0.02	0.17	<0.01	<0.01
Offsite Haul Truck Trips	0.23	30.5	1.16	0.15	0.14
Haul Truck Idle	0.15	1.54	0.91	0.01	0.01
Fugitive Dust	-	-	-	162	17.6
Hopper/Conveyor	-	-	-	32.4	4.95
Total Proposed Project	9.31	137	50.8	199	26.5
Significant (Yes or No)?	No	Yes	No	Yes	No
SCAQMD Thresholds of Significance	55	55	550	150	55

SOURCE: KB Environmental Sciences, Inc., 2014.

Therefore, the Project would result in potentially significant impacts related to NOx and PM_{10} emissions.

The following mitigation measures have been identified to reduce the potential significant air quality impacts to NO_x and PM_{10} emissions from the Project identified in **Table 3.3-6**:

MM AQ-7

Heavy-duty diesel trucks and onsite equipment shall be properly tuned and maintained to manufacturers' specifications to ensure minimum emissions under normal operations.

MM AQ-8

The Project Operator shall require all on-site off-road heavy-duty equipment greater than 50 horsepower (hp) to meet USEPA Tier 3 and/or 4 emissions standards; based on availability at the initiation of the Project.[15] In addition, all equipment shall be outfitted with the Best Available Control Technology (BACT) devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of the certified tier specification for each piece of heavy-duty equipment, BACT documentation, and CARB or SCAQMD operating permit shall be provided to the City prior to operation of the Project.

At a minimum, the Project Operator shall require upon occupancy that all heavy duty trucks entering the property must meet or exceed 2010 engine emission standards specified in California Code of Regulations Title 13, Article 4.5, Chapter 1, Section 2025.

The Project Operator shall require the phase-in for non-diesel powered trucks (e.g., natural gas trucks) as commercially-available and as a part of the bidding process during the replacement of diesel-powered trucks used at the project site.

MM AQ-9

All diesel truck operators shall strictly abide by the applicable State law requirements for idling, as described in the Airborne Toxic Control Measure (CCR, Title 13, Section 2485), which limits vehicles with gross vehicular weight ratings of more than 10,000 pounds to no more than five

[15] The first federal standards (Tier 1) for new nonroad (or off-road) diesel engines were adopted in 1994 for engines over 37 kW (50 hp), to be phased-in from 1996 to 2000. In 1998, the USEPA signed the final rule introducing Tier 1 standards for equipment under 37 kW (50 hp) and increasingly more stringent Tier 2 and Tier 3 standards for all equipment with phase-in schedules from 2000 to 2008. The Tier 1-3 standards are met through advanced engine design, with no or only limited use of exhaust gas after treatment (oxidation catalysts). Tier 3 standards for NOx+HC are similar in stringency to the 2004 standards for highway engines. In 2004, the USEPA signed the final rule introducing Tier 4 emission standards, which are to be phased-in over the period of 2008 to 2015. The Tier 4 standards require that emissions of PM and NOx be further reduced by about 90 percent. Tier 2 engines reduce NOx emissions by approximately 37 percent compared to Tier 1 engines, while Tier 3 engines achieve a 62 percent reduction in NOx-HC emissions.

minutes of idling of the primary engine or the diesel-fueled auxiliary power system at any location. Visible signage notifying truck operators of idling limits shall be posted near all site entrances.

MM AQ-10

All hoppers and conveyors will require SCAQMD permits. The screening/hoppers and conveyor system shall provide continuous water spray to suppress fugitive dust under normal operations.

MM AQ-11

Limit maximum speed on unpaved surfaces to 15 miles per hour.

MM AQ-12

Water or a stabilizing agent shall be applied at least three times daily, preferably in the mid-morning, afternoon, and after work is done for the day, to exposed surfaces including graded and disturbed areas in sufficient quantity to prevent generation of dust plumes.

MM AQ-13

Track-out shall not extend 25 feet or more from an active operation and track-out shall be removed at the conclusion of each workday. The contractor shall use a gravel apron, 25 feet long by road width, or a pipe grid trackout control device to reduce mud/dirt trackout from active operations and unpaved truck exit routes.

MM AQ-14

All trucks hauling dirt, sand, soil, or other loose materials shall be tarped with a fabric cover and maintain a freeboard height of 12 inches.

MM AQ-15

The first 200 feet of the access road shall be paved. The remaining length of the unpaved road shall be treated with dust palliatives and watered for dust control and soil stabilization.

Table 3.3-7 Estimated Daily Mitigated (Tier 4) Proposed Project Emissions (pounds) presents the mitigated emissions associated with the Proposed Project using Tier 4 emission standard equipment. The worst-case year of operations are expected to be the sixth year for CO and NO_x and the sixteenth year for ROG, PM_{10}, and $PM_{2.5}$. The total emissions (using Tier 4 emission standard equipment and fugitive dust reduction measures) of ROG, NO_x, PM_{10}, and $PM_{2.5}$ represent a 20 percent, 51 percent, 84 percent, and 83 percent reduction from the unmitigated emissions, respectively. Minor emission reductions would occur for CO and SO_2. The NO_x emissions are potentially above the significance threshold and thus, significant and unavoidable.

Table 3.3-7 Estimated Daily Mitigated (Tier 4) Proposed Project Emissions (pounds)

Project Phase	ROG	NOx	CO	PM10	PM2.5
On-site Equipment	6.90	43.8	48.6	0.55	0.54
Employee Trips	<0.01	0.01	0.17	<0.01	<0.01
Offsite Haul Truck Trips	0.35	22.1	1.16	0.09	0.08
Haul Truck Idle	0.18	1.14	0.91	0.01	0.01
Fugitive Dust	-	-	-	26.7	2.98
Hopper/Conveyor	-	-	-	4.11	0.62
Total Proposed Project	**7.43**	**67.0**	**50.8**	**31.5**	**4.22**
Significant (Yes or No)?	No	**Yes**	No	No	No
SCAQMD Thresholds of Significance	55	55	550	150	55

SOURCE: KB Environmental Sciences, Inc., 2014.

The availability of Tier 4 off-road equipment is expected to be limited upon initiation of the Proposed Project. If Tier 4 off-road equipment is unable to be included upon initiation of the Proposed Project, then Tier 3 off-road equipment would result in the operational emissions found in **Table 3.3-8 Estimated Daily Mitigated (Tier 3) Proposed Project Emissions (pounds).** The worst-case year of operations are expected to be the sixth year for all pollutants. The total emissions (using Tier 4 emission standard equipment and fugitive dust reduction measures) of ROG, NO_x, PM_{10}, and $PM_{2.5}$ represent an 8 percent, 24 percent, 82 percent, and 72 percent reduction from the unmitigated emissions, respectively. Minor emission reductions would occur for CO and SO_2. The NO_x emissions would be above the significance threshold and thus, significant and unavoidable.

Table 3.3-8 Estimated Daily Mitigated (Tier 3) Proposed Project Emissions (pounds)

Project Phase	ROG	NOx	CO	PM10	PM2.5
On-site Equipment	8.14	81.1	48.6	3.12	2.87
Employee Trips	<0.01	0.01	0.17	<0.01	<0.01
Offsite Haul Truck Trips	0.27	22.1	1.16	0.12	0.11
Haul Truck Idle	0.16	1.14	0.91	<0.01	<0.01
Fugitive Dust	-	-	-	26.7	2.98
Hopper/Conveyor	-	-	-	4.11	0.62
Total Proposed Project	**8.57**	**104**	**50.8**	**34.1**	**6.58**
Significant (Yes or No)?	No	**Yes**	No	No	No
SCAQMD Thresholds of Significance	55	55	550	150	55

SOURCE: KB Environmental Sciences, Inc., 2014.

Based on the above, the NO_x emissions associated with operational activities of the Project will conflict with or obstruct implementation of the applicable air quality plan and violate any air quality standards or contribute substantially to an existing or projected air quality violation of SCAQMD and result in a significant unavoidable impact.

THRESHOLD AQ-3

Would Project-related construction and operational activities potentially cause an exceedance of the Ambient Air Quality Standards for Criteria Pollutants?

Less than Significant Impact for CO, SO_2, NO_2, and $PM_{2.5}$

Less than Significant Impact with Mitigation for PM_{10}

The American Meteorological Society/USEPA Regulatory Model Improvement Committee Model ("AERMOD") Version 13350 was used to model the air dispersion of pollutants from the Project site and from off-site ambient air concentrations in order to evaluate compliance with the NAAQS and CAAQS. This model, which has been approved for use by USEPA, CARB, and SCAQMD, incorporates multiple variables in its algorithms including:

- Meteorological data representative of surface and upper air conditions;
- Local terrain data to account for elevation changes; and
- Physical specification of emission sources including information such as:
  - Location;
  - Release height; and
  - Source dimensions.

Dispersion model averaging times are specified based on the averaging times of ambient air quality standards and the air quality significance thresholds established by the appropriate regulatory agencies. Averaging times include 1-hour, 24-hour, and annual for the various pollutants. Dispersion modeling was performed using the maximum daily emissions and the complete five-year meteorological data set to evaluate short-term impacts, thereby ensuring that all likely meteorological conditions are considered. This approach is conservative, since it assumes that maximum daily emissions could occur on any day, even though there is a low probability that worst-case meteorological conditions would occur at exactly the same time as when the maximum emissions would occur.

The SCAQMD provides AERMOD model-ready meteorological data sets for use in air quality and risk impact analyses in the South Coast Air Basin. SCAQMD's Azusa meteorological data set was selected based on that station's geographic proximity to the Project site. The SCAQMD meteorological data set for January 1, 2008 to December 31, 2012 (the most recent data set available) was used for the analysis. The data set included ambient temperature, wind speed, wind direction, atmospheric stability, and mixing height parameters. Calm wind conditions were included in the modeling analysis consistent with guidance provided by SCAQMD. **Appendix AQ** depicts the wind rose for the Azusa station.

Criteria pollutant impacts were evaluated at receptors where a person can be situated for an hour or longer at a time. The following receptors are included in the AERMOD model:

- Fine grid 25 m x 25 m located up to 500 meters from the fence line; and
- Sensitive receptors are gridded receptors in residential areas, as well as discrete receptors, including long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities, within 1,000 m of the project boundary.

In order to determine if the concentrations of CO and NO_2 (attainment pollutants) would be below the ambient air quality standards, the maximum concentrations for NO_2 and CO from 2010 through 2012 at the Azusa monitoring station were determined from the data summarized in **Table 3.3-1 Air Quality Data Summary**. These concentrations were then added to the maximum modeled concentrations for these pollutants to determine the combined modeled and background concentrations. The other pollutants evaluated (i.e., PM_{10} and $PM_{2.5}$) have incremental thresholds and thus the results are not added to background concentrations. The concentration thresholds are displayed in **Table 3.3-4 Ambient Air Quality Standards for Criteria Pollutants**.

Under the unmitigated condition, the CO impacts including background concentrations are 3.1 and 1.4 ppm for the 1-hour and 8-hour averaging periods, respectively; well below the thresholds of 20 and 9 ppm, respectively. Under the unmitigated condition, the NO_2 impacts including

background concentrations are 0.15 and 0.02 ppm for the 1-hour and annual averaging periods, respectively. The 1-hour and annual NO_2 impacts are below the threshold of 0.18 and 0.03 ppm, respectively. The SO_2 impacts are less than 0.01 ppm as a result of ultra-low sulfur diesel.

The project incremental PM_{10} impacts are 9.4 for 24-hour impact and 1.2 µg/m^3 for annual impacts. The project incremental $PM_{2.5}$ impacts are 1.7 µg/m^3 for 24-hour impacts. The unmitigated PM_{10} impacts are potentially greater than the 24-hour threshold of 2.5 µg/m^3 and the annual threshold of 1.0 µg/m^3. However, the unmitigated impacts for 24-hour $PM_{2.5}$ are well below the 24-hour threshold of 2.5 µg/m^3.

Based on this, the Proposed Project would cause potential significant impacts to ambient concentrations for PM_{10}.

Mitigation Measures AQ-1 through AQ-9 would reduce combustion PM_{10} emissions. **Mitigation Measures AQ-10 through AQ-15** would reduce impact of PM_{10} from fugitive dust.

Under the mitigated condition (Tier 3 emission standards and fugitive dust reduction measures), the CO impacts including background concentrations are 3.1 and 1.4 ppm for the 1-hour and 8-hour averaging periods, respectively; well below the thresholds of 20 and 9 ppm, respectively. Under the unmitigated condition, the NO_2 impacts including background concentrations are 0.12 and 0.02 ppm for the 1-hour and annual averaging periods, respectively. The 1-hour and annual NO_2 impacts are below the threshold of 0.18 and 0.03 ppm, respectively. The SO_2 impacts are less than 0.01 ppm as a result of ultra-low sulfur diesel. The project incremental PM_{10} impacts are 2.2 for 24-hour impact and 0.3 µg/m^3 for annual impacts. The project incremental $PM_{2.5}$ impacts are 0.6 µg/m^3 for 24-hour impacts. All pollutant concentrations would be less than significant.

Thus, with regard to the ambient concentrations, the CO, NO_2, SO_2, and $PM_{2.5}$ operational emissions from the Proposed Project are less than significant while PM_{10} operational emissions are less than significant with mitigation.

THRESHOLD AQ-4

Increased traffic volumes due to the project result in increased pollutant emissions in the vicinity of the roads utilized by this traffic, which can cause pollutant levels to exceed the ambient air quality standards. CO and particulates (PM_{10} and $PM_{2.5}$) are the pollutants of major concern along roadways.

Would Project-related operational activities cause an exceedance of the CAAQS for CO at traffic intersections?

Less than Significant Impact

To test if the Project-related operational traffic would cause an exceedance of the CO standards at traffic intersections, the projected concentrations were compared to the significance thresholds. CO concentrations have declined dramatically in California due to existing controls and programs and most areas of the State including the Project region have no problem meeting the CO State and federal standards (current concentrations are less than 25 percent of the standards). CO measurements were important in the early 1980s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements have not been a priority in most California air districts due to the retirement of older polluting vehicles, reduced emissions from newer vehicles and improvements in fuels.

There is a direct relationship between traffic/circulation congestion and CO impacts; because exhaust from vehicular traffic are the primary source of CO. CO is a localized pollutant that dissipates very quickly under normal meteorological conditions. Therefore, CO concentrations decrease substantially as distance from the source (intersection) increases. The highest CO concentrations are typically found in areas directly adjacent to congested roadway intersections.

The SCAQMD suggests that localized CO impacts be considered at intersections that change from level of service (LOS) A, B, or C to D or worse as a result of the Proposed Project and for all intersections rated D or worse where the Proposed Project increases the volume-to-capacity by two percent or more.[16]

CO modeling was performed for the 2003 AQMP to demonstrate attainment of the Federal CO standards in the South Coast Air Basin. Modeling was performed for four intersections considered the worst-case intersections in the South Coast Air Basin. These intersections included; Wilshire at Veteran, Sunset at Highland, La Cienega at Century, and Long Beach at Imperial. Table 4-10 of Appendix V of the 2003 AQMP shows that modeled 1-hour average concentrations at these four intersections for 2002 conditions are actually below the 8-hour standard of 9 ppm. The highest modeled 1-hour average concentration of 4.6 ppm occurred at the Wilshire and Veteran intersection. None of the intersections in the project area have peak hour traffic volumes that exceed those at the intersections modeled in the 2003 AQMP nor do they have any geometric qualities that would result in higher concentrations than for the intersections modeled. Generally, only intersections operating at LOS of D or worse are considered to have the potential to cause CO concentrations to exceed the CAAQS of 20 ppm for a 1-hour averaging time and 9 ppm for an 8-hour averaging time. The entire state of California is attainment for CO.

Traffic volumes at the Proposed Project intersections are not projected to exceed the traffic volumes of the three worst-case intersections in the Basin either on a per lane basis or total traffic. Further, these intersections do not have any characteristics that would result in higher CO

[16] SCAQMD, Ian MacMillian (Program Supervisor – CEQA Section), February 2012.

concentrations than the worst-case intersections. Therefore, an exceedance of the CO AAQS would not be expected at any of these intersections and impacts would be less than significant.

Would Project-related operational activities cause an exceedance of the CAAQS for PM_{10} and $PM_{2.5}$ at traffic intersections?

Less than Significant Impact

Roads with substantial diesel truck volumes have the potential to result in particulate hot spots. The Federal Highway Administration (FHWA) has published guidance on performing a qualitative analysis of particulate hot spots because at this time a reliable and accurate methodology for quantitatively assessing particulate hotspots has not been established. The FHWA guidance considers a road with an average daily diesel truck volume of 10,000 or less does not have the potential to result in a hot spot. None of the local roads in the project area would be expected to have this level of diesel truck traffic. The Proposed Project would result in 262 one-way truck trips a day or 131 round trips. The truck route is approximately three miles to URP's existing processing plant located at 1245 E Arrow Highway in Irwindale. Trucks would reach this location by exiting the site at Los Angeles Street, turning north onto Azusa Canyon Road, then proceeding west on Arrow Highway to the URP processing plant.

If a project in a PM_{10} area is considered a project of concern, the detailed hot spot analysis must include both direct (exhaust, tire wear, and brake wear, usually developed using EMFAC) and re-entrained road dust (developed using USEPA's AP-42 method unless a local method is specified in an approved PM_{10} SIP) emissions. Project analysis for $PM_{2.5}$ need not include re-entrained dust unless an approved SIP says that it's needed; as of January 2014, only the South Coast $PM_{2.5}$ SIP includes such a finding.

Generally, a project is not a project of concern unless it changes capacity or alignment of a road with more than 125,000 AADT and eight percent trucks, more than 10,000 truck AADT (eight percent of 125,000), or otherwise may substantially increase or concentrate diesel exhaust emissions (such as bus terminals and transfer points, designated truck routes, and freight intermodal terminals).[17] The nearby freeways include approximately seven percent truck traffic.

The Proposed Project would not cause diesel truck traffic volumes at a level to be a project of concern. Thus, the Project is not anticipated to cause or significantly contribute to any particulate matter concentrations exceeding the AAQS along local roadways serving the Project.

THRESHOLD AQ-5

Would Project operational activities expose sensitive receptors to substantial concentrations of toxic air contaminants (TACs)?

[17] CalTrans, Particulate Matter Hot-spot Analysis, http://www.dot.ca.gov/hq/env/air/pages/qualpm.htm

Less than Significant Impact

The Project-related health risk and hazards were compared to the significance thresholds. A HRA was conducted in accordance with technical guidelines developed by the federal and California agencies (i.e., USEPA, CalEPA-OEHHA) and the SCAQMD. The methodology and assumptions in the application of a HRA are provided in **Appendix AQ** of this EIR.

The greatest potential impact from TACs would be diesel particulate emissions from trucks during operations. Additional air toxics may be emitted from service station operations. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. The Maximally Exposed Individual represents the worst–case risk estimate, based on a theoretical person continuously exposed for 70 years at the point of highest compound concentration in the air.

The SCAQMD has established the CEQA significance threshold for individuals exposed to TAC sources as the increased incremental cancer risk of 10 in one million or greater. The HRA analyzed the potential incremental cancer risks to residents in the project vicinity of the Proposed Project, using emission rates from CARB's CalEEMod, EMFAC2011 and OFFROAD2011 emission models for combustion sources and EPA's AP-42 emission factors for fugitive dust. Emissions were input into the USEPA approved dispersion model AERMOD to calculate ambient air concentrations at receptors in the project vicinity. This assessment is intended to provide a worst–case estimate of the increased exposure by employing a standard emission estimation program and an accepted pollutant dispersion model.

Conservative health risk methodologies were used in the risk assessment in order to estimate maximum potential health risks. These methodologies overestimate both non-carcinogenic and carcinogenic health risk, possibly by an order of magnitude or more. Therefore, for carcinogenic risks, the actual probabilities of cancer formation in the populations of concern due to exposure to carcinogenic pollutants are likely to be lower than the risks derived using the risk assessment methodology. In accordance with OEHHA guidelines, the HRA was accomplished by applying the highest estimated concentrations of TAC at the receptors analyzed to the established cancer potency factors and acceptable reference concentrations for non-cancer health effects.

For the unmitigated Proposed Project, the maximum incremental cancer risks from all equipment and trucks would be 2.2 (residential adult receptor), 1.1 (residential child receptor), 0.4 (off-site worker), and 0.2 (school children receptor) cancers per million, which are less than the SCAQMD significance threshold of 10 in one million. Therefore, potential health risk impacts are determined to be less than significant.

Notably, with **MM AQ-1 through AQ-15**, the health impacts would be further reduced. For the mitigated Proposed Project (Tier 3 emission standards and fugitive dust reduction measures), the

maximum incremental cancer risks from all equipment and trucks would be 1.8 (residential adult receptor), 0.9 (residential child receptor), 0.4 (off-site worker), and 0.2 (school children receptor) cancers per million, which are less than the SCAQMD significance threshold of 10 in one million.

The maximum incremental cancer risk is relatively small compared with the overall lifetime cancer incidence of 200,000 to 250,000 per million in the United States. Conservative health risk methodologies were used in the risk assessment in order to estimate maximum potential health risks. These methodologies are anticipated to overestimate both non-carcinogenic and carcinogenic health risk, possibly by an order of magnitude or more. For carcinogenic risks, the actual probabilities of cancer formation in the populations of concern due to exposure to carcinogenic pollutants are likely to be lower than the risks derived using the risk assessment methodology.

Exposure to non–carcinogenic substances would be significant if the Hazard Index (HI) exceeds 1.0. The Hazard Index is the ratio of a hazardous air pollutant concentration to its Reference Concentration, or safe exposure level. If this "hazard index" exceeds one, people are exposed to levels of hazardous air pollutants that may pose non-cancer health risks. The maximum chronic hazard index for the Proposed Project is 0.1 and thus less than significant. The maximum acute hazard index for the Proposed Project is 0.1 and thus less than significant.

THRESHOLD AQ-6

Would the Project create objectionable odors affecting a substantial amount of people?

Less than Significant Impact

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. There are no associated odors with the Proposed Project's type of mining activities. Thus, it is determined that the Proposed Project would not create odors affecting a substantial amount of people and this impact would be less than significant.

THRESHOLD AQ-7

Would the Project conflict with implementation of State goals for reducing greenhouse gas emissions?

Less than Significant Impact

The primary source of greenhouse gas emissions (GHG) associated with the Proposed Project would occur from ongoing mining operations and movement of the rock for processing**.**

Importantly, CEQA Guidelines 15064.4 provides the relevant rules for determining significance of impacts from GHG emissions.[18] Section 15064.4 allow for quantitative and qualitative discussion in the absence of method or models. Also, to the extent possible, the GHG emission calculations should be based on best available scientific and factual data. Lastly, the lead agency should consider whether the project would increase or decrease compared to the existing environmental setting.

For the Proposed Project, the City is adopting the SCAQMD, 10,000 MT CO2e per year industrial project screening threshold as the significance threshold in addition to the qualitative thresholds of significance from *Section VII of Appendix G to the CEQA Guidelines*. The methodology recommends that total construction emissions be amortized over a 30-year period or the project's expected lifetime if it is less than 30 years. Three types of analyses were used to determine whether the Proposed Project would be in conflict with the California goals for reducing GHG emissions. The analyses are reviews of:

A. The potential conflicts with the CARB' thirty-nine (39) recommended actions identified in **Table 3.3-9 List of Recommended Actions by Sector (from the Climate Change Scoping Plan)**;

B. The Proposed Project emissions compared to the SCAQMD significance threshold of 10,000 MT CO_2e per year; and

C. Potential conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

With regard to Item a., the Proposed Project does not pose any apparent conflict with the CARB recommended actions listed in **Table 3.3-9 List of Recommended Actions by Sector**. This list identifies targets that show how California plans to reduce emissions (by the year 2020) to meet the objectives of AB 32. The main measures that would apply to this project would be the Transportation Measures, although none requires any specific action by the Proposed Project.

In regard to Item B, GHG emissions of CO_2, CH_4, and N_2O were estimated and converted to CO_2e emissions. The Proposed Project would result in a maximum annual GHG emissions of

[18] A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or rely on a qualitative analysis or performance based standards. A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment: (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting; (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

3,272 MT and an average annual GHG emissions of 2,722 metric tons during the lifetime of the Proposed Project. These GHG emissions are well below the SCAQMD significance threshold of 10,000 MT CO2e per year.

Construction of the proposed project would generate 326 metric tons of CO2e. The 30-year amortized annual construction related GHG emissions would be 11 metric tons of CO2e. Because construction emissions would be short-term and would cease upon completion, GHG from construction activities would not substantially contribute to the global GHG emissions burden.

The GHG emissions results were converted to CO2 equivalent values using the Global Warming Potential (GWP) values of 1 for CO2 and 25 for CH4 (based on a 100 year period) as presented in the IPCC's Assessment Report.[19]

With regard to Item c., the Proposed Project would not be expected to conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. CARB is continuing to develop strategies to reduce statewide GHG emissions, including heavy-duty vehicle emission reductions, as directed by AB 32. The Proposed Project would be required to comply with all new State laws and regulations, including as they may be implemented by SCAQMD.

Table 3.3-9 List of Recommended Actions by Sector

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO_2e)
	Transportation	
T-1	Pavley I and II – Light Duty Vehicle Greenhouse Gas Standards	31.7
T-2	Low Carbon Fuel Standard (Discrete Early Action)	15
T-3[1]	Regional Transportation-Related Greenhouse Gas Targets	5
T-4	Vehicle Efficiency Measures	4.5
T-5	Ship Electrification at Ports (Discrete Early Action)	0.2
T-6	Goods Movement Efficiency Measures. • Ship Electrification at Ports • System-Wide Efficiency Improvements	3.5
T-7	Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)	0.93
T-8	Medium- and Heavy-Duty Vehicle Hybridization	0.5

[19] Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, New York City, NY. 2007.

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO_2e)
T-9	High Speed Rail	1
	Electricity and Natural Gas	
E-1	Energy Efficiency (32,000 GWh of Reduced Demand) • Increased Utility Energy Efficiency Programs • More Stringent Building & Appliance Standards • Additional Efficiency and Conservation Programs	15.2
E-2	Increase Combined Heat and Power Use by 30,000 GWh (Net reductions include avoided transmission line loss)	6.7
E-3	Renewables Portfolio Standard (33% by 2020)	21.3
E-4	Million Solar Roofs (including California Solar Initiative, New Solar Homes Partnership and solar programs of publicly owned utilities) Target of 3000 MW Total Installation by 2020	2.1
CR-1	Energy Efficiency (800 Million Therms Reduced Consumptions) • Utility Energy Efficiency Programs • Building and Appliance Standards • Additional Efficiency and Conservation Programs	4.3
CR-2	Solar Water Heating (AB 1470 goal)	0.1
	Green Buildings	
GB-1	Green Buildings	26
	Water	
W-1	Water Use Efficiency	1.4†
W-2	Water Recycling	0.3†
W-3	Water System Energy Efficiency	2.0†
W-4	Reuse Urban Runoff	0.2†
W-5	Increase Renewable Energy Production	0.9†
W-6	Public Goods Charge (Water)	TBD†
	Industry	
I-1	Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	TBD
I-2	Oil and Gas Extraction GHG Emission Reduction	0.2
I-3	GHG Leak Reduction from Oil and Gas Transmission	0.9
I-4	Refinery Flare Recovery Process Improvements	0.3
I-5	Removal of Methane Exemption from Existing Refinery Regulations	0.01
	Recycling and Water Management	
RW-1	Landfill Methane Control (Discrete Early Action)	1
RW-2	Additional Reductions in Landfill Methane Increase the Efficiency of Landfill Methane Capture	TBD†

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO_2e)
RW-3	High Recycling/Zero Water • Commercial Recycling • Increase Production and Markets for Compost • Anaerobic Digestion • Extended Producer Responsibility • Environmentally Preferable Purchasing	9†
Forests		
F-1	Sustainable Forest Target	5
High Global Warming Potential (GWP) Gases		
H-1	Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Services (Discrete Early Action)	0.26
H-2	SF_6 Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	0.3
H-3	Reduction of Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)	0.15
H-4	Limit High GWP Use in Consumer Products Discrete Early Action (Adopted June 2008)	0.25
H-5	High GWP Reductions from Mobile Sources • Low GWP Refrigerants for New Motor Vehicle Air Conditioning Systems • Air Conditioner Refrigerant Leak Test During Vehicle Smog Check • Refrigerant Recovery from Decommissioned Refrigerated Shipping Containers • Enforcement of Federal Ban on Refrigerant Release during Servicing or Dismantling of Motor Vehicle Air Conditioning Systems	3.3
H-6	High GWP Reductions from Stationary Sources • High GWP Stationary Equipment Refrigerant Management Program: o Refrigerant Tracking/Reporting/Repair Deposit Program o Specifications for Commercial and Industrial Refrigeration Systems • Foam Recovery and Destruction Program • SF Leak Reduction and Recycling in Electrical Applications • Alternative Suppressants in Fire Protection Systems • Residential Refrigeration Early Retirement Program	10.9
H-7	Mitigation Fee on High GWP Gases	5
Agriculture		
A-1	Methane Capture at Large Dairies	1.0†

[1] This is not the SB 375 regional target. CARB will establish regional targets for each Metropolitan Planning Organization (MPO) region following the input of the regional targets advisory committee and a consultation process with MPO's and other stakeholders per SB 375.
† GHG emission reduction estimates are not included in calculating the total reductions needed to meet the 2020 target.

The Proposed Project would not foreseeably exceed the quantitative SCAQMD threshold of significance for GHG emissions 10,000 MT CO_2e per year, nor conflict with any applicable plans and thus, would have a less than significant impact.

3.3.4 SIGNIFICANCE AFTER MITIGATION

Implementation of the Mitigation Program, and adherence to various federal, State, and local laws, ordinances, and regulations, would result in the following findings of potential air quality emissions and impacts, GHG emissions, odor and health risk assessment impacts associated with the construction and operation of the Olive Pit Mine. All impacts from the Proposed Project related to air quality, GHG emissions, and health risks would be less than significant with mitigation except NO_x operational emissions, which are significant and unavoidable.

3.3.5 CUMULATIVE IMPACTS

Would the Project result in a cumulative impact of criteria pollutants including ozone precursors (NO_x) emissions?

Significant and Unavoidable for NO_x emissions.

The Proposed Project would result in a potentially significant NO_x emissions during operations and the South Coast Air Basin is nonattainment for ozone and particulate matter. Therefore, the Proposed Project would result in a regional cumulative impact given that the Basin is in nonattainment for ozone and particulate matter. The other criteria air pollutants are far below the SCAQMD significance thresholds and would not be a cumulatively considerable contribution to the Basin.

The GHG emissions from this Proposed Project would be less than significant impact. Since all GHG impacts are essentially cumulative impacts (any single project would not have an effect on global climate change), the Proposed Project would not have cumulative effect and this impact would be less than significant.