5.9 Air Quality

5.9 AIR QUALITY

This section addresses the air emissions generated by the construction and operation of the Project, and the potential impacts to air quality. The analysis also addresses the consistency of the Project with the air quality policies set forth within the South Coast Air Quality Management District's (SCAQMD) *2016 Air Quality Management Plan* (2016 AQMP). The analysis of Project-generated air emissions focuses on whether the Project would cause an exceedance of an ambient air quality standard or SCAQMD significance thresholds.

This section is based upon the following technical studies included as Appendix 11.9, *Air Quality/Greenhouse Gas Analysis*:

- iLanco Environmental, LLC, *Air Quality and Greenhouse Gas Analysis, In Support of: California Grand Village Azusa Greens*, October 2017 (as amended August 15, 2018) (Air Quality and Greenhouse Gas Analysis).

5.9.1 EXISTING SETTING

SOUTH COAST AIR BASIN

Geography

The City is located in the South Coast Air Basin (Basin), a 6,600-square mile area 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, in addition to the San Gorgonio Pass area of Riverside County.

The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of air pollutants throughout the Basin.

Climate

The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The climate consists of a semiarid environment with mild winters, warm summers, moderate temperatures, and comfortable humidity. Precipitation is limited to a few winter storms. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The average annual temperature varies little throughout the Basin, averaging 75 degrees Fahrenheit (°F). However, with a less-pronounced oceanic influence, the eastern inland portions of the Basin show greater variability in annual minimum and maximum temperatures. All portions of the Basin have had recorded temperatures over 100°F in recent years.

Although the Basin has a semi-arid climate, the air near the surface is moist due to the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the Basin. Precipitation in the Basin is typically nine to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the Basin.

The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the day. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone (O_3) observed during summer months in the Basin. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

The Site vicinity offers clear skies and sunshine yet is still susceptible to air inversions. These inversions trap a layer of stagnant air near the ground, where it is then further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources.

The City experiences average high temperatures of up to 92°F during the month of August, and average low temperatures of 42°F during the month of December. The City experiences approximately 17.32 inches of precipitation per year, with the most precipitation occurring in the month of February.[1]

Local Ambient Air Quality

The SCAQMD monitors air quality at 37 monitoring stations throughout the Basin. Each monitoring station is located within a Source Receptor Area (SRA). The communities within a SRA are expected to have similar climatology and ambient air pollutant concentrations. The Site is located in the East San Gabriel Valley SRA (SRA 9). The monitoring station representative of this area is the Azusa station[2], which is located approximately 0.25-mile south of the Site. The air pollutants measured at the Azusa station site include O_3, carbon monoxide (CO), particulates (PM_{10} and $PM_{2.5}$), and nitrogen dioxide (NO_2). Sulfur dioxide (SO_2) is not measured at the Azusa site. Sulfur dioxide levels in the Basin have been well below State and Federal standards for many years. The air quality data monitored at the Azusa station from 2015 to 2017 are presented in Table 5.9-1, *Azusa Station Air Quality Monitoring Summary 2015-2017*.

[1] The Weather Channel, *Azusa, CA Monthly Weather*, https://weather.com/weather/monthly/l/USCA0059:1:US, accessed August 9, 2018.

[2] South Coast Air Quality Management District, *South Coast AQMD Site Survey Report for Azusa,* accessed August 13, 2018.

Table 5.9-1
Azusa Station Air Quality Monitoring Summary 2015-2017

Pollutant	Averaging Period	Standard	Highest Monitored Concentration Number of Days Above Standard		
			2015	2016	2017
Ozone (ppm)	1-hour State	0.09	0.12 / 21	0.13 / 30	0.16 / 38
	8-hour National	0.07	0.083 / 27	0.088 / 39	0.11 / 64
	8-hour State	0.07	--	--	--
CO (ppm)	1-hour National	35	--	--	--
	1-hour State	20	--	--	--
	8-hour National and State	9	1.3 / 0--	1.2 / 0--	0.9 / 0--
NO_2 (ppm)	1-hour National	0.100	0.059 / 0	0.060 / 0	0.056 / 0
	1-hour State	0.18	0.070 / 0	0.070 / 0	0.070 / 0
	Annual National	0.053	0.015 / --	0.017 / --	0.016 / --
	Annual State	0.030	0.017 / --	0.017 / --	0.016 / --
SO_2 (ppm)	1-hour National	0.075	--	--	--
	1-hour State	0.25	--	--	--
	24-hour State	0.04	--	--	--
PM_{10} (µg/m^3)	24-hour National	150	95.0 / 0	64.0 / 0	83.9 / 0
	24-hour State	50	93.0 / 12	--	--
	Annual State	20	36.2 / --	--	--
$PM_{2.5}$ (µg/m^3)	24-hour National	35	30.0 / 2	29.0 / 0	24.9 / 0
	Annual National	12	--	--	--
	Annual State	12	11 / --	10 / --	10 / --

ppm = parts per million; PM_{10} = particulate matter 10 microns in diameter or less; NM = not measured; µg/m^3 = micrograms per cubic meter; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less.

Source: iLanco Environmental, LLC, *Air Quality and Greenhouse Gas Analysis, In Support of: California Grand Village Azusa Greens*, October 2017; refer to Appendix 11.9.

Criteria pollutants are pollutants regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and effects are identified below:

Carbon Monoxide (CO). CO is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions.

CO replaces oxygen in the body's red blood cells. Individuals with a deficient blood supply to the heart, patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes are most susceptible to the adverse effects of CO exposure. People with heart disease are also more susceptible to developing chest pains when exposed to low levels of carbon monoxide.

Ozone (O_3). Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level,

where it meets the second layer, the stratosphere. The stratospheric (the "good" ozone layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays. "Bad" ozone is a photochemical pollutant, and needs volatile organic compounds (VOCs), nitrogen oxides (NO_X), and sunlight to form; therefore, VOCs and NO_X are ozone precursors. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and a period of several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While ozone in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone (in the troposphere) can adversely affect the human respiratory system and other tissues. Ozone is a strong irritant that can constrict the airways, forcing the respiratory system to work hard to deliver oxygen. Individuals exercising outdoors, children, and people with pre-existing lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible to the health effects of ozone. Short-term exposure (lasting for a few hours) to ozone at elevated levels can result in aggravated respiratory diseases such as emphysema, bronchitis and asthma, shortness of breath, increased susceptibility to infections, inflammation of the lung tissue, increased fatigue, as well as chest pain, dry throat, headache, and nausea.

Nitrogen Dioxide (NO_2). NO_X are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone and react in the atmosphere to form acid rain. NO_2 (often used interchangeably with NO_X) is a reddish-brown gas that can cause breathing difficulties at elevated levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations). NO_2 can irritate and damage the lungs and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Coarse Particulate Matter (PM_{10}). PM_{10} refers to suspended particulate matter, which is smaller than 10 microns or ten one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003, the California Air Resources Board (CARB) adopted amendments to the Statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25).

Fine Particulate Matter ($PM_{2.5}$). Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the U.S. Environmental Protection Agency (EPA) announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the EPA, the United States Supreme Court reversed this decision and upheld the EPA's new standards. On January 5, 2005, the EPA published a Final Rule in the Federal Register that designates the Basin as

a nonattainment area for Federal $PM_{2.5}$ standards. On June 20, 2002, CARB adopted amendments for Statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the Statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

Sulfur Dioxide (SO_2). SO_2 is a colorless, irritating gas with a rotten egg smell; it is formed primarily by the combustion of sulfur-containing fossil fuels. Sulfur dioxide is often used interchangeably with SO_X and lead. Exposure of a few minutes to low levels of SO_2 can result in airway constriction in some asthmatics.

Volatile Organic Compounds (VOC). Volatile organic compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The SCAQMD uses the terms VOC and ROG (see below) interchangeably.

Reactive Organic Gases (ROG). Similar to VOC, ROG are also precursors in forming ozone and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The SCAQMD uses the terms ROG and VOC interchangeably.

Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. The following types of people are most likely to be adversely affected by air pollution, as identified by CARB: children under 14, elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Locations that may contain a high concentration of these sensitive population groups are called sensitive receptors and include residential areas, hospitals, day-care facilities, elder-care facilities, elementary schools, and parks. The following receptors were identified as sensitive receptors in vicinity of the Site:

- The proposed Site is surrounded by adjacent residential receptors to the north and east.
- The closest school is Hodge Elementary School, located approximately 0.50-mile to the east, on West 11th Street.

- The closest child-care center is S.A.J Child Care and Preschool, located approximately 0.3-mile to the east, on West Sierra Madre Avenue.

- The closest assisted living facility is Silverado Sierra Vista Memory Care Community - Assisted Living Facility, located approximately one mile to the northeast, on West Sierra Madre Avenue.

- The closest hospital is the Casa Colina Hospital, located approximately two miles southeast of the proposed Project, on East Alosta Avenue in Azusa.

5.9.2 REGULATORY SETTING

FEDERAL LEVEL

U.S. Environmental Protection Agency

The EPA is responsible for implementing the Federal Clean Air Act (FCAA), which was first enacted in 1955 and amended numerous times after. The FCAA established Federal air quality standards known as the National Ambient Air Quality Standards (NAAQS). These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare; refer to Table 5.9-2, *National and California Ambient Air Quality Standards*.

STATE LEVEL

California Air Resources Board

CARB administers the air quality policy in California. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 5.9-2, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMP's also serve as the basis for the preparation of the State Implementation Plan for the State of California.

Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data show that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as nonattainment.

Table 5.9-2
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[3,4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m³)	**Nonattainment**	N/A	N/A[5]
	8 Hours	0.070 ppm (137 μg/m³)	**Nonattainment**	0.070 ppm (137 μg/m³)	**Nonattainment**
Particulate Matter (PM_{10})	24 Hours	50 μg/m³	**Nonattainment**	150 μg/m³	Attainment/Maintenance
	Annual Arithmetic Mean	20 μg/m³	**Nonattainment**	N/A	N/A
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate State Standard		35 μg/m³	**Nonattainment**
	Annual Arithmetic Mean	12 μg/m³	**Nonattainment**	12.0 μg/m³	**Nonattainment**
Carbon Monoxide (CO)	8 Hours	9.0 ppm (10 mg/m³)	Attainment	9 ppm (10 mg/m³)	Attainment/Maintenance
	1 Hour	20 ppm (23 mg/m³)	Attainment	35 ppm (40 mg/m³)	Attainment/Maintenance
Nitrogen Dioxide (NO_2)[5]	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	N/A	53 ppb (100 μg/m³)	Attainment/Maintenance
	1 Hour	0.18 ppm (339 μg/m³)	Attainment	100 ppb (188 μg/m³)	Attainment/Maintenance
Lead (Pb)[7,8]	30 days Average	1.5 μg/m³	Attainment	N/A	N/A
	Calendar Quarter	N/A	N/A	1.5 μg/m³	**Nonattainment**
	Rolling 3-Month Average	N/A	N/A	0.15 μg/m³	**Nonattainment**
Sulfur Dioxide (SO_2)[6]	24 Hours	0.04 ppm (105 μg/m³)	Attainment	0.14 ppm (for certain areas)	Unclassified/Attainment
	3 Hours	N/A	N/A	N/A	N/A
	1 Hour	0.25 ppm (655 μg/m³)	Attainment	75 ppb (196 μg/m³)	N/A
	Annual Arithmetic Mean	N/A	N/A	0.30 ppm (for certain areas)	Unclassified/Attainment
Visibility-Reducing Particles[9]	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70 percent RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 μg/m³	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)	Unclassified		
Vinyl Chloride[7]	24 Hour	0.01 ppm (26 μg/m³)	N/A		

Notes: μg/m³ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
6. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of ppb. California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
7. CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
8. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
9. In 1989, CARB converted both the general Statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the Statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board, *Ambient Air Quality Standards Chart,* May 4, 2016, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, accessed August 9, 2018.

South Coast Air Quality Management District

The SCAQMD is one of 35 air quality management districts that have prepared AQMP's to accomplish a five-percent annual reduction in emissions. On March 3, 2017, the SCAQMD Governing Board approved the 2016 AQMP, which is a regional blueprint for achieving air quality standards and healthful air. The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in greenhouse gases and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including the latest applicable growth assumptions, Regional Transportation Plan/Sustainable Communities Strategy, and updated emission inventory methodologies for various source categories. The 2016 AQMP relies on a multi-level partnership of governmental agencies at the Federal, State, regional, and local level. These agencies (EPA, CARB, local governments, Southern California Association of Governments [SCAG] and the SCAQMD) are the primary agencies that implement the AQMP programs.

The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including SCAG's latest *Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS), updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. The 2016 AQMP includes integrated strategies and measures to meet the NAAQS. To ensure air quality goals are met while maximizing benefits and minimizing adverse impacts to the regional economy, the following policy objectives have guided the development of the 2016 AQMP:

- Eliminate reliance on future technologies (FCAA Section 182[e][5]) measures to the maximum extent feasible;
- Calculate and take credit for co-benefits from other planning efforts;
- Develop a strategy with fair-share emission reductions at the Federal, State, and local levels;
- Invest in strategies and technologies meeting multiple objectives regarding air quality, climate change, air toxics exposure, energy, and transportation;
- Identify and secure significant funding for incentives to implement early deployment and commercialization of zero and near-zero technologies;
- Enhance the socioeconomic analysis and pursue the most efficient and cost-effective path to achieve multi-pollutant and multi-deadline targets; and
- Prioritize enforceable regulatory measures as well as non-regulatory, innovative, and "win-win" approaches for emission reductions.

In addition to the 2016 AQMP and its rules and regulations, the SCAQMD published the *CEQA Air Quality Handbook*. The SCAQMD *CEQA Air Quality Handbook* provides guidance to assist local government agencies and consultants in developing the environmental documents required by

CEQA. With the help of the *CEQA Air Quality Handbook*, local land use planners and other consultants are able to analyze and document how proposed and existing projects affect air quality and should be able to fulfill the requirements of the CEQA review process. The SCAQMD is in the process of developing an *Air Quality Analysis Guidance Handbook* to replace the current *CEQA Air Quality Handbook* approved by the SCAQMD Governing Board in 1993.

LOCAL LEVEL

City of Azusa General Plan

City policies pertaining to air quality are contained in the General Plan Natural Environment Element (adopted April 2004). These goals and policies are intended to reduce air pollutant emissions in the City and improve the overall air quality for the community. The applicable air quality-related policies include, but are not limited to, the following:

GOALS AND POLICIES

Goal 1 – Improve air quality in Azusa and reduce exposure to air pollutants.

Policy 1.1: Integrate air quality concerns into land use planning decisions.

Policy 1.2: Integrate air quality concerns into site design review.

Policy 1.3: Reduce pollutant emissions from quarry operations, off -road vehicles use areas, industrial uses, and vehicular traffic.

Policy 1.4: Participate in regional air quality planning strategies.

Policy 1.5: Consider encouraging the use of "green roof" construction technologies.

5.9.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

REGIONAL AIR QUALITY

In its *CEQA Air Quality Handbook* (November 1993), the SCAQMD has established significance thresholds to assess the impact of project related air pollutant emissions. Table 5.9-3, *SCAQMD Regional Pollutant Emission Thresholds of Significance*, presents these significance thresholds. There are separate thresholds for short-term construction and long-term operational emissions. A project with daily emission rates below these thresholds is considered to have a less than significant effect on regional air quality from both a direct and cumulative impact standpoint.

Table 5.9-3
SCAQMD Regional Pollutant Emission Thresholds of Significance

Phase	Pollutant (pounds/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction	75	100	550	150	150	55
Operation	55	55	550	150	150	55

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

Source: iLanco Environmental, LLC, *Air Quality and Greenhouse Gas Analysis, In Support of: California Grand Village Azusa Greens*, October 2017; refer to Appendix 11.9.

LOCAL AIR QUALITY

Localized Significance Thresholds

Localized Significance Thresholds (LSTs) were developed in response to the SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (revised July 2008) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with proposed projects. The SCAQMD provides the LST lookup tables for one, two, and five-acre projects emitting CO, NO_X, PM_{10}, and $PM_{2.5}$. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors.

Localized CO

In addition, a project would result in a local air quality impact if the project results in increased traffic volumes and/or decreases in Level of Service (LOS) that would result in an exceedance of the CO ambient air quality standards of 20 parts per million (ppm) for 1-hour CO concentration levels, and 9 ppm for 8-hour CO concentration levels. If the CO concentrations at potentially impacted intersections with the project are lower than the standards, then there is no significant impact. If future CO concentrations with the project are above the standard, then the project would have a significant local air quality impact.

Cumulative Emissions

The SCAQMD's 2016 AQMP was prepared to accommodate growth, meet State and Federal air quality standards, and minimize the fiscal impact that pollution control measures have on the local economy. According to the *CEQA Air Quality Handbook*, project-related emissions that fall below the established construction and operational thresholds are considered less than significant.

SCAQMD rule development through the 1970s and 1980s resulted in dramatic improvement in Basin air quality. Nearly all control programs developed through the early 1990s relied on (i) the development and application of cleaner technology; (ii) add-on emission controls, and (iii) uniform CEQA review throughout the Basin. Industrial emission sources have been significantly reduced by this approach and vehicular emissions have been reduced by technologies implemented at the state level by CARB.

As discussed above, the SCAQMD is the lead agency charged with regulating air quality emission reductions for the entire Basin. SCAQMD created AQMPs, which represent a regional blueprint for achieving healthful air on behalf of the 16 million residents of the South Coast Basin. The historical improvement in air quality since the 1970s is the direct result of southern California's comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its AQMPs and by utilizing uniform CEQA review throughout the Basin.

Ozone, NO_x, VOC, and CO have been decreasing in the Basin since 1975 and are projected to continue to decrease through 2020. These decreases result primarily from motor vehicle controls and reductions in evaporative emissions. Although vehicle miles traveled in the Basin continue to increase, NO_x and VOC levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NO_x emissions from electric utilities have also decreased due to use of cleaner fuels and renewable energy. The overall trends of PM_{10} and $PM_{2.5}$ in the air (not emissions) show an overall improvement since 1975. Direct emissions of PM_{10} have remained somewhat constant in the Basin and direct emissions of $PM_{2.5}$ have decreased slightly since 1975. Area wide sources (fugitive dust from roads, dust from construction and demolition, and other sources) contribute the greatest amount of direct particulate matter emissions.

Part of the control process of the SCAQMD's duty to greatly improve the air quality in the Basin is the uniform CEQA review procedures required by SCAQMD's *CEQA Handbook*. The single threshold of significance used to assess direct and cumulative project impacts has in fact "worked" as evidenced by the track record of the air quality in the Basin dramatically improving over the course of the past decades. As stated by the SCAQMD, the SCAQMD thresholds of significance are based on factual and scientific data and are therefore appropriate thresholds of significance to use for this Project.

CEQA SIGNIFICANCE CRITERIA

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by Appendix G of the *CEQA Guidelines*, as amended, and used by the City in its environmental review process. The Initial Study Checklist includes questions relating to air quality. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant adverse environmental impact if it would:

a) Conflict with or obstruct implementation of the applicable air quality plan (refer to Impact Statement AQ-4);

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation (refer to Impact Statements AQ-1 and AQ-2);

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) (refer to Impact Statements AQ-1 and AQ-2 and Section 5.9.5, *Cumulative Impacts*);

d) Expose sensitive receptors to substantial pollutant concentrations (refer to Impact Statement AQ-3); and/or

e) Create objectionable odors affecting a substantial number of people (refer to Section 8.0, *Effects Found Not To Be Significant*).

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

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

5.9.4 IMPACTS AND MITIGATION MEASURES

SHORT-TERM (CONSTRUCTION) AIR EMISSIONS

AQ-1 Would short-term construction activities associated with the Project result in air pollutant emission impacts or expose sensitive receptors to substantial pollutant concentrations?

Impact Analysis: Short-term air quality impacts are predicted to occur during grading and construction operations associated with implementation of the Project. Temporary air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from grading and building construction; and
- Exhaust emissions from the construction equipment and the motor vehicles of the construction crew.

Reconfiguration of the golf course would only involve site preparation during a four-month period and would include the use of the following construction equipment: rubber-tired dozers and tractors/loaders/backhoes. Construction of the Senior Village (including off-site improvements) is anticipated to take 17 months and would include the use of the following construction equipment: concrete/industrial saws, excavators, rubber-tired dozers, graders, scrapers, tractors/loaders/ backhoes, cranes, forklifts, generator sets, welders, trenchers, pavers, paving equipment, rollers, and air compressors. Emissions for each construction phase have been quantified based upon the phase durations and equipment types. The analysis of daily construction emissions has been prepared utilizing the California Emissions Estimator Model (CalEEMod, version 2016.3.2). Refer to Appendix 11.9., for the CalEEMod outputs and results. Table 5.9-4, *Maximum Daily Peak Construction Emissions*, presents the anticipated daily short-term construction emissions.

Table 5.9-4
Maximum Daily Peak Construction Emissions

Year	Daily Pollutant Emissions (pounds/day)[1]					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Unmitigated Emissions[3]						
2018[4]	5	48	23	0.04	21	12
2019[5]	5	56	34	0.07	21	12
2020[6]	35	25	27	0.06	4	2
Maximum Daily Emissions	**35**	**56**	**34**	**0.07**	**21**	**12**
SCAQMD Significance Threshold[2]	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded Before Mitigation?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Mitigated Emissions[3]						
2018[4]	1	2	22	0.04	5	3
2019[5]	3	22	34	0.07	4	2
2020[6]	35	20	27	0.06	4	2
Maximum Daily Emissions	**35**	**22**	**34**	**0.07**	**4**	**2**
SCAQMD Significance Threshold[2]	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded After Mitigation?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

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

Notes:
1. Emissions were calculated using CalEEMod Version 2016.3.2, as recommend by SCAQMD.
2. Regional daily construction thresholds are based on the SCAQMD significance thresholds.
3. Emissions might not add precisely due to rounding.
4. 2018 construction reflects reconstruction of golf course.
5. 2019 construction reflects the maximum between 2019 reconstruction of golf course and residential development construction in 2019. Reconstruction of golf course and residential development construction would not overlap.
6. 2020 construction reflects residential development construction.

Source: iLanco Environmental, LLC, *Air Quality and Greenhouse Gas Analysis, In Support of: California Grand Village Azusa Greens*, October 2017; refer to Appendix 11.9.

FUGITIVE DUST EMISSIONS

Fugitive dust (PM_{10} and $PM_{2.5}$) from grading and construction is expected to be short-term and would cease following Project completion. Most of this material is composed of inert silicates, which are less harmful to health than the complex organic particulates released from combustion sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and SO_X combining with ammonia. The greatest amount of fugitive dust generated is expected to occur during site grading and excavation of the golf course; refer to Appendix 11.9. Dust generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular concern is the amount of PM_{10} generated as a part of fugitive dust emissions.

CalEEMod was used to calculate PM_{10} and $PM_{2.5}$ fugitive dust emissions as part of the Site earthwork activities; refer to Table 5.9-4. Maximum particulate matter emissions would occur during the initial stages of construction, when grading activities would occur. As detailed in Table 5.9-4, construction related PM_{10} emissions would range between 4 and 21 pounds/day and $PM_{2.5}$ emissions would range between 2 and 12 pounds/day, which are less than the regional significance

thresholds for each. Further, best available control measures under SCA AQ-1 would also further reduce fugitive dust emissions. SCA AQ-1 requires that construction activities comply with SCAQMD Rule 403, such that excessive fugitive dust emissions be controlled by regular watering or other dust prevention measures. Thus, fugitive dust emissions would be below the thresholds of 150 and 55 pounds/day for PM_{10} and $PM_{2.5}$, respectively, and impacts related to fugitive dust emissions would be less than significant.

CONSTRUCTION EXHAUST EMISSIONS

Exhaust emissions would be generated by the operation of vehicles and equipment on the construction site, such as tractors, dozers, backhoes, cranes, and trucks. The majority of construction equipment and vehicles would be diesel powered, which tends to be more efficient than gasoline-powered equipment. Diesel-powered equipment produces lower carbon monoxide and hydrocarbon emissions than gasoline equipment, but produces greater amounts of NO_X, SO_X, and particulates per hour of activity. The transportation of machinery, equipment and materials to and from the Site, as well as construction worker trips, would also generate vehicle emissions during construction. As presented in Table 5.9-4, unmitigated construction equipment and worker vehicle exhaust emissions would not exceed the emissions thresholds. Further, best available control measures associated with reducing construction exhaust emissions are also required by SCA AQ-2. Implementation of SCA AQ-2 would ensure all heavy-duty trucks do not idle for greater than five minutes at any location, thereby further reducing construction exhaust emissions as well as construction traffic.

VOC EMISSIONS

The application of asphalt and surface coatings creates VOC emissions, which are O_3 precursors. As shown in Table 5.9-4, short-term construction activities associated with the Project would emit a maximum of 35 pounds/day of VOC emissions, which does not exceed the 75 pounds/day criteria pollutant thresholds for VOCs. As such, construction emissions would be below the thresholds of 75 pounds/day for VOC, and impacts would be less than significant level.

TOTAL DAILY CONSTRUCTION EMISSIONS

CalEEMod was utilized to model construction emissions for VOC, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. As indicated in Table 5.9-4, unmitigated construction emissions would not exceed SCAQMD thresholds. SCA AQ-1 and SCA AQ-2 would further reduce fugitive dust and construction exhaust emissions. As such, construction emissions would be less than significant with mitigation incorporated.

ASBESTOS

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

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

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (dated August 2000), the Site is not located in an area where naturally occurring asbestos is likely to be present. Therefore, no impacts are anticipated to result.

Standard Conditions of Approval:

SCA AQ-1 The following measures shall be incorporated into Project plans and specifications as implementation of South Coast Air Quality Management District (SCAQMD) Rule 403:

- All active portions of the construction site shall be watered every three hours during daily construction activities and when dust is observed migrating from the Site to prevent excessive amounts of dust;
- Pave or apply water every two hours during daily construction activities or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas. More frequent watering shall occur if dust is observed migrating from the Site during site disturbance;
- Any on-site stockpiles of debris, dirt, or other dusty material shall be enclosed, covered, or watered twice daily, or non-toxic soil binders shall be applied;
- All grading and excavation operations shall be suspended when wind speeds exceed 25 miles per hour;
- Disturbed areas shall be replaced with ground cover or paved immediately after construction is completed in the affected area;
- Track-out devices such as gravel bed track-out aprons (3 inches deep, 25 feet long, 12 feet wide per lane and edged by rock berm or row of stakes) shall be installed to reduce mud/dirt trackout from unpaved truck exit routes. Alternatively, a wheel washer shall be used at truck exit routes;
- On-site vehicle speed shall be limited to 15 miles per hour; and

- All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust prior to departing the Site.

SCA AQ-2 Per the California Air Resources Board (CARB), in Title 13, Chapter 10, Section 2485, Division 3 of the of the California Code of Regulations, heavy-duty trucks accessing the Site shall not idle for greater than five minutes at any location in order to reduce construction exhaust emissions and construction traffic. Grading plans shall reference that a sign shall be posted on-site stating that construction workers need to shut off engines at or before five minutes of idling.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

LONG-TERM (OPERATIONAL) AIR EMISSIONS

AQ-2 Would implementation of the Project result in increased impacts pertaining to operational air emissions?

Impact Analysis: Operational emissions generated by both stationary and mobile sources would result from normal daily activities on the Site after construction is complete (i.e., increased concentrations of O_3, PM_{10}, and CO). Stationary area source emissions would be generated by the consumption of natural gas for space and water heating devices, the operation of landscape maintenance and on-site equipment, and the use of consumer products. Stationary energy emissions would result from energy consumption associated with the Project. Mobile emissions would be generated by the motor vehicles traveling to and from the Site. Emissions associated with each of these sources were calculated and are discussed below.

AREA SOURCE EMISSIONS

Area source emissions include those generated by architectural coatings, consumer products, and landscape maintenance equipment as described below.

- *Architectural Coatings:* As part of Project maintenance, architectural coatings on the Project buildings would emit emissions from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings.

- *Consumer Products:* Consumer products include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds, which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants.

- *Landscape Maintenance Equipment:* Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Site.

ENERGY SOURCE EMISSIONS

Pollutant emissions associated with energy demand (i.e., electricity generation and natural gas consumption) are classified by the SCAQMD as regional stationary source emissions. However, because electrical generating facilities for the Site vicinity are distributed throughout the Basin and western United States, their emissions contribute to the total regional pollutant burden. Thus, criteria pollutant emissions from off-site generation of electricity is generally excluded from the evaluation of significance and only natural gas use is considered. The primary use of natural gas by the proposed land uses would be for combustion to produce space heating, water heating, other miscellaneous heating, or air conditioning, consumer products, and landscaping.

MOBILE SOURCE EMISSIONS

Vehicles

Project related operational air quality impacts are derived predominantly from mobile sources. Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Mobile source air quality impacts are dependent on both overall daily vehicle trip generation and the effect of the Project on peak hour traffic volumes and traffic operations in the Site vicinity. The operational air quality impacts are derived primarily from vehicle trips generated by the Project. The analysis below relies on the net Project trips (as opposed to the passenger car equivalents) to accurately account for the effect of vehicle emissions associated with the Project.

Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X, PM_{10}, and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Fugitive Dust Related to Vehicular Travel

According to CARB, fugitive dust are solid particles that come primarily from the soil, but can also contain sea salt, pollen, spores, tire particles, etc. Fugitive dust does not come out from a vent or a stack and is not usually a by-product of burning. For the purposes of this analysis, dirt roads are not anticipated to exist on the Site and, therefore, would not be the primary source of fugitive dust. However, vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of tire wear particulates.

Operational Emissions Summary

All long-term (operational) emissions estimates were calculated using the CalEEMod model; refer to Appendix 11.9. This model predicts ROG, NO_X, PM_{10}, and $PM_{2.5}$ emissions from area, energy, and mobile (traffic) sources associated with the proposed land uses. Table 5.9-5, *Long-Term Operational Air Emissions*, presents the Project's anticipated operational source emissions for the Project. As indicated, the unmitigated operational emissions from the Project would not exceed regional thresholds of significance established by the SCAQMD for criteria air emissions. Therefore, a less than significant impact would occur in this regard.

Table 5.9-5
Long-Term Operational Air Emissions

Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Buildout Year 2020						
Area Source	6.6	3.9	22.8	0.0	0.4	0.4
Energy Source	0.1	1.3	0.5	0.1	0.1	0.1
Mobile	1.7	9.2	22.3	0.1	6.4	1.8
Total Maximum Daily Emissions	**8**	**14**	**46**	**0.1**	**7**	**2**
SCAQMD Regional Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

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

Source: iLanco Environmental, LLC, *Air Quality and Greenhouse Gas Analysis, In Support of: California Grand Village Azusa Greens*, October 2017; refer to Appendix 11.9.

Standard Conditions of Approval: No standard conditions of approval are applicable.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

LOCALIZED EMISSIONS

AQ-3 Would development associated with implementation of the Project result in localized emissions impacts or expose sensitive receptors to substantial pollutant concentrations?

Impact Analysis: LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized air quality impacts. The SCAQMD provides the LST screening lookup tables for projects that disturb/grade one, two, or five acres per day emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres in size should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors from area source emissions. For LST analysis purposes, SCAQMD is divided into 38 SRAs, each of which contain specific localized air quality emission thresholds for CO, NO_X, $PM_{2.5}$, and PM_{10} to determine local air quality impacts. The Site is located within SRA 9, East San Gabriel Valley.

SENSITIVE RECEPTORS

To assess the potential for long-term operational and short-term emission impacts, four receptor locations were identified as representative locations for analysis. Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, individuals with pre-existing

respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as "sensitive receptors;" they are also known to be locations where an individual can remain for 24 hours.

The closest sensitive receptor is represented by existing residential homes located approximately 82 feet (25 meters) from the Site. Other sensitive receptors in the study area at greater distances than those identified would experience lower air impacts than those identified below due to the additional particle dispersion from distance and the shielding of intervening structures.

CONSTRUCTION IMPACTS

The SCAQMD guidance on applying CalEEMod to LSTs specifies the amount of acres a particular piece of equipment would likely disturb per day. SCAQMD provides LST thresholds for one-, two-, and five-acre site disturbance areas; SCAQMD does not provide LST thresholds for projects over five acres. Table 5.9-6, *Maximum Daily Disturbed Acreage*, identifies the maximum daily disturbed acreage for the purposes of LST modeling. As shown, the Project could actively disturb approximately 1.5 acres per day during the site preparation and 3.0 acre per day during the grading phases of construction.

Table 5.9-6
Project Maximum Daily Disturbed Acreage

Construction Phase	Equipment Type	Equipment Quantity	Acres graded per 8-hour day	Operating Hours per Day	Acres graded per day
Site Preparation	Rubber Tired Dozers	3	0.5	8	1.5
	Crawler Tractors	0	0.5	8	0
	Graders	0	0.5	8	0
	Scrapers	0	1	8	0
Total Acres Graded – Site Preparation Phase					**1.5**
Grading[1]	Rubber Tired Dozers	1	0.5	8	0.5
	Crawler Tractors	0	0.5	8	0
	Graders	1	0.5	8	0.5
	Scrapers	2	1	8	2
Total Acres Graded – Grading Phase					**3.0**

Notes:
1. Includes the construction of a new 8-inch sewer line connection from the Senior Village to an existing 12-inch sewer line in North Todd Avenue.

Source: iLanco Environmental, LLC, *Air Quality and Greenhouse Gas Analysis, In Support of: California Grand Village Azusa Greens*, October 2017; refer to Appendix 11.9.

Since the total acreage disturbed is less than five acres per day for both the site preparation and grading phases, the SCAQMD's screening look-up tables are utilized in determining impacts. It should be noted that since the look-up tables identifies thresholds at only one acre, two acres, and five acres, linear regression has been utilized, consistent with SCAQMD guidance, in order to interpolate the threshold values for the other disturbed acreage not identified. As previously noted, an 82-foot sensitive receptor distance is utilized to determine the LSTs for emissions of CO, NO_X, PM_{10}, and $PM_{2.5}$. Table 5.9-7, *Construction Localized Significance Emissions Summary*, identifies the localized impacts at the nearest receptor location in the Site vicinity. As shown in Table 5.9-7, unmitigated localized on-site construction emissions would exceed the SCAQMD LSTs thresholds for PM_{10} and $PM_{2.5}$ during the Project's site preparation and grading construction phases. However,

implementation of Mitigation Measure AQ-1 requiring the use of EPA Tier 4 construction equipment, and implementation of SCA AQ-1 and AQ-2 would reduce emissions to levels below the SCAQMD LST thresholds; refer to Table 5.9-7. A less than significant impact would occur with implementation of SCA AQ-1, SCA AQ-2, and Mitigation Measure AQ-1.

Table 5.9-7
Construction Localized Significance Emissions Summary

Phase	Emissions (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Site Preparation Phase				
2018 Maximum unmitigated Daily Emissions	48.20	22.48	**20.64**	**12.30**
2019 Maximum unmitigated Daily Emissions	45.57	22.06	**20.47**	**12.13**
2018 Maximum Mitigated Daily Emissions	2.02	20.87	4.76	2.64
2019 Maximum Mitigated Daily Emissions	2.02	20.87	4.76	2.64
SCAQMD Localized Threshold	*128*	*953*	*7*	*5*
Threshold Exceeded after mitigation?[1]	**NO**	**NO**	**NO**	**NO**
Grading Phase				
2019 Maximum unmitigated Daily Emissions[1]	54.52	33.38	**11.06**	**5.79**
2019 Maximum Mitigated Daily Emissions[1]	3.3	33	2.36	1.04
SCAQMD Localized Threshold	***128***	***953***	***7***	***5***
Threshold Exceeded after mitigation?[2]	**NO**	**NO**	**NO**	**NO**

NO_X = nitrous oxide; CO = carbon monoxide; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns

Notes:
1. Modeled emissions include the construction of a new 8-inch sewer line connection from the Senior Village to an existing 12-inch sewer line in North Todd Avenue.
2. Refer to Mitigation Measure AQ-1, below.

Source: iLanco Environmental, LLC, *Air Quality and Greenhouse Gas Analysis, In Support of: California Grand Village Azusa Greens*, October 2017; refer to Appendix 11.9.

OPERATIONAL IMPACTS

According to SCAQMD localized significance threshold methodology, LSTs would apply to the operational phase of a proposed project if the project includes stationary sources or attracts mobile sources that may spend extended periods queuing and idling at the site (e.g., warehouse or transfer facilities). Occasional truck deliveries for food, linens, etc., and trash pickup (once per week) would occur at the proposed Senior Village. These truck delivery/trash pickup activities would be intermittent and would not include extended periods of idling time; therefore, idling emissions from truck deliveries would be minimal. Additionally, potential emergency vehicle trips to and from the Site would be sporadic and would not idle on-site or along adjacent roadways for long periods of time. Thus, due to the lack of such emissions, no long-term localized significance threshold analysis is needed. Operational LST impacts would be less than significant in this regard.

CARBON MONOXIDE HOTSPOTS

An adverse CO concentration, known as a "hot spot," would occur if an exceedance of the State one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the

CEQA Air Quality Handbook (1993), the Basin was designated nonattainment under the CAAQS and NAAQS for CO.

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams per mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the Basin is now designated as attainment. Also, CO concentrations in the Site vicinity have steadily declined, as indicated by historical emissions data.

To establish a more accurate record of baseline CO concentrations affecting the Basin, a CO hotspot analysis (2003 Los Angeles Hotspot Study) was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This hotspot analysis did not predict any violation of CO standards.

Based on the SCAQMD's 2003 AQMP and the 1992 *Federal Attainment Plan for Carbon Monoxide* (1992 CO Plan), peak CO concentrations in the Basin were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. For example, 9.3 ppm 8-hr CO concentration measured at the Long Beach Boulevard and Imperial Highway intersection in the City of Lynwood (highest CO generating intersection in the 2003 Los Angeles Hotspot Study), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 8.6 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared. In contrast, the ambient 8-hr CO concentration within the Site vicinity is estimated to range between 0.9 and 1.3 ppm. Therefore, even if Project-generated traffic volumes were double or even triple of the traffic volumes generated at the North Todd Avenue, West Tenth Street, and West Sierra Madre Avenue, coupled with on-going improvements in ambient air quality, the Project would not be capable of creating a CO hotspot at any study area intersections.

Similar considerations are also employed by other air districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour (or 24,000 vehicles per hour where vertical and/or horizontal air does not mix) in order to generate a significant CO impact.

At buildout of the Project, the highest daily traffic volumes generated at the roadways within the vicinity of the Site are expected to generate less than the highest daily traffic volumes generated at the busiest intersection in the 2003 AQMP. As such, the Project would not likely exceed the most stringent 1-hour CO standard and would not produce the volume of traffic required to generate a CO hotspot either in the context of the 2003 Los Angeles Hotspot Study or based on representative BAAQMD CO threshold considerations. Therefore, impacts related to CO hotspots for the Project would be less than significant.

Standard Conditions of Approval: Refer to SCA AQ-1 and SCA AQ-2.

Mitigation Measures:

AQ-1 Construction equipment used during site preparation and grading activities greater than 50 horsepower shall meet EPA Tier 4 emission standards.

Level of Significance: Less Than Significant Impact With Mitigation Incorporated.

CONSISTENCY WITH REGIONAL PLANS

AQ-4 Would implementation of the Project conflict with or obstruct implementation of the applicable air quality plan?

Impact Analysis: On March 3, 2017, the SCAQMD Governing Board adopted the 2016 AQMP, which incorporates the latest scientific and technical information and planning assumptions, including the latest applicable growth assumptions, RTP/SCS, and updated emission inventory methodologies for various source categories. According to the SCAQMD's *CEQA Air Quality Handbook*, two main criteria must be addressed.

CRITERION 1

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

> *Would the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?*
>
> Since the consistency criteria identified under the first criterion pertain to pollutant concentrations, rather than to total regional emissions, an analysis of a project's pollutant emissions relative to localized pollutant concentrations associated with the CAAQS and NAAQS is used as the basis for evaluating Project consistency. As discussed in Impact Statement AQ-3, localized concentrations of CO, NO_X, PM_{10}, and $PM_{2.5}$ would be less than significant during Project construction and operations. Therefore, the Project would not result in an increase in the frequency or severity of existing air quality violations. Because VOCs are not a criteria pollutant, there is no ambient standard or localized threshold for VOCs. Due to the role VOC plays in O_3 formation, it is classified as a precursor pollutant and only a regional emissions threshold has been established. As such, the Project would not cause or contribute to localized air quality violations or delay the attainment of air quality standard or interim emissions reductions specified in the AQMP.

CRITERION 2

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the Basin focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether or not the

project exceeds the assumptions utilized in preparing the forecasts presented in the 2016 AQMP. Determining whether or not a project exceeds the assumptions reflected in the 2016 AQMP involves the evaluation of the following criterion.

Would the project exceed the assumptions in the AQMP based on the years of project build-out phase?

In the case of the 2016 AQMP, three sources of data form the basis for the projections of air pollutant emissions: the *City of Azusa General Plan* (General Plan), SCAG's *Growth Management* Chapter of the *Regional Comprehensive Plan* (RCP), and SCAG's RTP/SCS. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City; these are used by SCAG in all phases of implementation and review.

The Project requires a General Plan Amendment to change the land use designation from Open Space to Specific Plan, and a Zone Change to change the Site's zoning from Recreation to Specific Plan. As discussed in Section 6.3, *Growth-Inducing Impacts*, after the General Plan Amendment and Zone Change, the Project would not cause the City's General Plan buildout population forecast to be exceeded and would not exceed SCAG 2020 or 2035 growth forecasts for dwelling units and population with the exception of SCAG 2020 population forecasts by 957 persons. However, the City's current (2018) population of 49,954 already exceeds SCAG 2020 population forecast of 49,300 persons by 654 persons; refer to Table 6-4, *Proposed Project Compared to SCAG Growth Forecasts* (in Section 6.3). General Plan buildout projections form the basis of SCAG's planning and policy documents, including regional growth forecasts. The accuracy of SCAG's 2020 population projections for the City are reduced due to the considerable amount of time that has passed since General Plan adoption (adopted in April 2004). Further, the project would nominally increase the City's existing population of 49,954 persons by approximately 0.6 percent. Thus, the Project would be consistent with the types, intensity, and patterns of land use envisioned for the Site vicinity in the RCP after the General Plan Amendment and Zoning Change. As the SCAQMD has incorporated these same projections into the 2016 AQMP, it can be concluded that the Project would be consistent with the projections.

It is also noted that the Project's construction and operational air emissions would not exceed the SCAQMD regional thresholds, and localized NO_x emissions during construction would be below SCAQMD LST thresholds with implementation of Mitigation Measure AQ-1. The project would also be would be required to comply with the applicable SCAQMD emission reduction measures identified in SCA AQ-1 and SCA AQ-2. As such, the Project would not result in or cause NAAQS or CAAQS violations. As such, a less than significant impact would occur with regard to 2016 AQMP consistency under the Project.

Standard Conditions of Approval: Refer to SCA AQ-1 and SCA AQ-2.

Mitigation Measures: Refer to Mitigation Measures AQ-1.

Level of Significance: Less Than Significant Impact With Mitigation Incorporated.

5.9.5 CUMULATIVE IMPACTS

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

SHORT-TERM (CONSTRUCTION) AIR EMISSIONS

- **Would short-term construction activities associated with the Project and other related cumulative projects, result in cumulatively considerable increased air pollutant emission impacts or expose sensitive receptors to increased pollutant concentrations?**

Impact Analysis: The closest cumulative project is the Colorama Project (Canyon City Business Center), located at the northwest corner of North Todd Avenue and West Sierra Madre Avenue; the next closest cumulative project (the Tenth Street Center Industrial Business Park located west of North Todd Avenue, north of Union Pacific railroad tracks) has already been constructed. Therefore, it is possible that construction activities associated with the Project and the Canyon City Business Center project overlap. However, the SCAQMD neither recommends quantified analyses of cumulative construction emissions, nor does it provide separate methodologies or thresholds of significance to be used to assess cumulative construction impacts. The SCAQMD significance thresholds for construction are intended to meet the objectives of the 2016 AQMP to ensure the NAAQS and CAAQS are not exceeded. Therefore, any quantitative analysis to ascertain the daily construction emissions that assumes multiple, concurrent construction would be speculative. In addition, construction-related criteria pollutant emissions are temporary in nature and cease following completion of construction.

As discussed above, compliance with SCAQMD rules and regulations (SCA AQ-1 and SCA AQ-2) and Mitigation Measure AQ-1 would reduce the Project's construction-related air quality impacts to a less than significant level. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted 2016 AQMP emissions control measures) would also be imposed on construction projects throughout the Basin, which would include each of the related projects listed in Section 4.0, *Basis of Cumulative Analysis*. Therefore, as cumulative projects would be required to reduce their emissions per SCAQMD rules and mandates, cumulative construction emissions would not contribute to an exceedance of the NAAQS and CAAQS and, therefore, would comply with the goals of the 2016 AQMP. Thus, it can be reasonably inferred that the Project-related construction activities, in combination with those from other projects in the area, would not deteriorate the local air quality and would not result in cumulative considerable construction-related impacts.

Standard Conditions of Approval: Refer to SCA AQ-1 and SCA AQ-2.

Mitigation Measures: Refer to Mitigation Measure AQ-1.

Level of Significance: Less Than Significant Impact With Mitigation Incorporated.

LONG-TERM (OPERATIONAL) AIR EMISSIONS

- **Would the Project and other related cumulative projects result in increased impacts pertaining to operational air emissions?**

Impact Analysis: The SCAQMD has set forth both a methodological framework as well as significance thresholds for the assessment of a project's cumulative operational air quality impacts. The SCAQMD's approach for assessing cumulative impacts is based on the SCAQMD's 2016 AQMP forecasts of attainment of NAAQS in accordance with the requirements of the FCAA and CCAA. This forecast also takes into account SCAG's 2016 AQMP forecasted future regional growth. As such, the analysis of cumulative impacts focuses on determining whether the proposed project is consistent with the growth assumptions upon which the SCAQMD's 2016 AQMP is based. If the project is consistent with the growth assumptions, then future development would not impede the attainment of NAAQS and a significant cumulative air quality impact would not occur.

As discussed above, the Project's operational emissions would not exceed SCAQMD regional thresholds and would be consistent with the 2016 AQMP. Therefore, the Project would not be significantly cumulatively considerable. A less than significant impact would occur in this regard.

Standard Conditions of Approval: No standard conditions of approval are applicable.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

LOCALIZED EMISSIONS

- **Would development associated with implementation of the Project and other cumulative projects result in cumulatively considerable localized emissions impacts or expose sensitive receptors to substantial pollutant concentrations?**

Impact Analysis: As stated above, the LST methodology assists lead agencies in analyzing localized air quality impacts. The SCAQMD provides the LST screening lookup tables for one-, two-, and five-acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. Because the disturbed acreages for each cumulative project site can vary, the LST thresholds utilized also vary on a project-by-project basis. Localized emissions only affect the areas immediately adjacent to the Site.

As discussed above, construction and operational source emissions for the Project would not exceed the applicable LSTs with implementation of SCA AQ-1 and SCA AQ-2, and Mitigation Measures AQ-1. Thus, the Project's construction localized emissions impacts would not be cumulatively considerable toward exposing sensitive receptors to substantial pollutant concentrations with implementation of SCA AQ-1 and SCA AQ-2, and Mitigation Measures AQ-1.

Standard Conditions of Approval: Refer to SCA AQ-1 and SCA AQ-2.

Mitigation Measures: Refer to Mitigation Measure AQ-1.

Level of Significance: Less Than Significant Impact With Mitigation Incorporated.

CONSISTENCY WITH REGIONAL PLANS

- **Would implementation of the Project and other related cumulative projects conflict with or obstruct implementation of the applicable air quality plan?**

Impact Analysis: The City is subject to the 2016 AQMP. Additionally, the City is located within the Los Angeles County sub-region of the SCAG's RTP/SCS, which governs population growth. Although the Project would require the completion of a General Plan Amendment and Zone Change, the Project's growth-inducing impacts (including population growth) would be less than significant; refer to Section 6.3. In addition, the Project's construction and operational air emissions would not exceed the SCAQMD regional thresholds, and localized NO_x emissions during construction would be below SCAQMD LST thresholds with implementation of Mitigation Measure AQ-1. The project would also be would be required to comply with the applicable SCAQMD emission reduction measures identified in SCA AQ-1 and SCA AQ-2 to further reduce emissions. Therefore, the Project would be consistent with the types, intensity, and patterns of land use envisioned for the Site vicinity in the RCP after the General Plan Amendment and Zoning Change and would be consistent with the 2016 AQMP. As such, the Project would not have a cumulatively considerable contribution to impacts in this regard, and a less than significant impact would occur.

Standard Conditions of Approval: Refer to SCA AQ-1 and SCA AQ-2.

Mitigation Measures: Refer to Mitigation Measure AQ-1.

Level of Significance: Less Than Significant Impact With Mitigation Incorporated.

5.9.6 SIGNIFICANT UNAVOIDABLE IMPACTS

No significant unavoidable impacts related to air quality have been identified following implementation of Project conditions of approval referenced in this section.