Michael Baker
INTERNATIONAL

We Make a Difference

June 22, 2023 JN 188524

REDLANDS SUMMIT, LLC
Attn: *Mr. Patrick Meyer*
1705 Oak Grove Ave
San Marino, CA 91108

SUBJECT: Air Quality, Green House Gas, and Energy Technical Memorandum for the Proposed Neighborhoods at Lugonia Village – City of Redlands, County of San Bernardino, California

Dear Mr. Meyer:

Michael Baker International (Michael Baker) has prepared this technical memorandum is to evaluate the potential air quality, greenhouse gas emissions, and energy impacts that could result from the proposed Neighborhood at Lugonia Village Project (project), located in the City of Redlands (City), County of San Bernardino (County), California.

INTRODUCTION

PROJECT LOCATION

The project site is located in the northwest quadrant of the intersection of West Lugonia Avenue and Karon Street. The site is bound by an existing unnamed driveway to the north, Karon Street to the east, and West Lugonia Avenue to the south. Surrounding land uses include vacant land to the north, single-family residences to the east, commercial and vacant land uses to the south, and vacant land uses to the west with transportation use (i.e., Tennessee Street and Interstate 210) located further west. Regional access to the site is provided via Interstate 210 (I-210, Foothill Freeway), and Interstate 10 (I-10). Local access to the site is provided via West Lugonia Avenue.

EXISTING SITE CONDITIONS

The project site is a disturbed, currently undeveloped vacant 24.43-acre lot. According to the *City of Redlands General Plan 2035* (General Plan), the majority of site is currently designated Commercial, with the eastern portion designated Low-Density Residential (LDR) and a small area in the center of the site designated as Parks/Golf Courses.[1] The Commercial land use category designates areas for the development of a wide range of commercial uses, including neighborhood-serving stores and convenience centers,

[1] City of Redlands, *Redlands General Plan Land Use Map*, April 2022, https://www.cityofredlands.org/sites/main/files/file-attachments/generalplan2035.pdf?1649693557, accessed June 15, 2022.

regional commercial centers, and commercial recreation. The LDR land use category designates areas intended to be developed at density of up to 6 dwelling units per acres. Park/Golf Courses includes both public and private facilities developed for outdoor active or passive recreation, trails within linear parks, and golf courses. Based on *City of Redlands Zoning Map* (Zoning Map), the site is currently zoned as Special Development District (EV/SD) within the East Valley Corridor Specific Plan.[2] The Special Development District is intended to provide an alternative, more flexible site planning process which encourages creative and imaginative planning of administrative professional, commercial or industrial developments, or a mixture of such uses, within the framework of a single cohesive concept plan.

PROJECT DESCRIPTION

The proposed project would involve a General Plan Amendment, Specific Plan Amendment, Zone Change, Tentative Tract and Parcel Maps, and related development applications to allow for the construction of a mixture of multi-family, townhomes, and single-family residential development for a total of 541 residential units.

Specifically, the multi-family residential development would include one- to three-story buildings in the southern portion of the site with a total of 451 units, the townhome development would include 72 units and would be located in the northern portion of the site and the single-family development would include 18 dwelling units along Karon Street.

There would be a total of 744 parking spaces, including garages, carports, parallel parking, and open stall parking spaces provided for the multi-family development. A total of 165 parking spaces would be provided for the townhome development. A total of 18 two-car garages (attached to the individual single-family dwellings) would be constructed for the single-family development.

The project would include amenities such as multi-purpose rooms, mailrooms, clubhouses, pools, jacuzzies, barbeques, among others. Common (i.e., courtyards) and private open spaces (i.e., patios and balconies) as well as ornamental landscaping would be provided throughout the project site.

Project construction would occur over approximately 31 months. Common construction phases would include grading, building construction, paving, and architectural coating.

AIR QUALITY EMISSIONS

ENVIRONMENTAL SETTING

Regional Topography

The City is located within 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.

[2] City of Redlands, *City of Redlands - Zoning Map*, April 2022, https://www.cityofredlands.org/sites/main/files/file-attachments/zoning.pdf?1649714270, accessed June 15, 2022.

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 semi-arid 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.

Criteria Air Pollutants

The following discussions consider the specific criteria pollutants of concern considered as part of this analysis.

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 CO.

Ozone (O_3). O_3 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" O_3 layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays. "Bad" O_3 is a photochemical pollutant, and needs volatile organic compounds (VOCs), nitrogen oxides (NO_X), and sunlight to form; therefore, VOCs and NO_X are O_3 precursors. To reduce O_3 concentrations, it is necessary to control the emissions of these O_3 precursors. Significant O_3 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 O_3 concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While O_3 in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level O_3 (in the troposphere) can adversely affect the human respiratory system and other tissues. O_3 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 O_3. Short-term exposure (lasting for a few hours) to O_3 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 O_3 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.

On July 8, 2016, EPA made a finding that the South Coast has attained the 1997 24-hour and annual $PM_{2.5}$ standards based on 2011-2013 data. However, the Basin remains in nonattainment as the EPA has not determined that California has met the Federal Clean Air Act requirements for redesignating the Basin nonattainment area to attainment.

Sulfur Dioxide (SO_2). Sulfur dioxide (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. Exposure of a few minutes to low levels of SO_2 can result in airway constriction in some asthmatics.

Volatile Organic Compounds (VOC). VOCs 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 O_3 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. VOC is not considered a criteria pollutant; however, it is a precursor to O3, which is a criteria pollutant. Due to the role VOC plays in O3 formation, it is classified as a precursor pollutant and only a regional emissions threshold has been established. The SCAQMD uses the terms VOC and ROG (see below) interchangeably.

Reactive Organic Gases (ROG). Similar to VOCs, ROGs are also precursors in forming O_3 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 (see above) interchangeably.

Local Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the State. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The closest air monitoring station to the project site that monitors O_3 and PM_{10}, is the Redlands-Dearborn Monitoring Station located at 500 North Dearborn, Redlands, California 92373.

The closest air monitoring station to the project site that monitors, and CO, NO_2, and $PM_{2.5}$ is the San Bernardino-4th Street Monitoring Station located at 24302 4th Street, San Bernardino, California 92410. Local air quality data from 2019 to 2021 is provided in Table 1, *Summary of Air Quality Data*. This table lists the monitored maximum concentrations and number of exceedances of State/Federal air quality standards for each year.

Table 1
Summary of Air Quality Data

Pollutant	California Standard	Federal Primary Standard	Year	Maximum Concentration[1]	Days (Samples) State/Federal Std. Exceeded
Ozone (O_3) (1-hour)[2]	0.09 ppm for 1 hour	NA[6]	2019 2020 2021	0.137 ppm 0.173 ppm 0.145 ppm	73 / 8 104 / 16 74 / 7
Ozone (O_3) (8-hour)[2]	0.070 ppm for 8 hours	0.070 ppm for 8 hours	2019 2020 2021	0.118 ppm 0.137 ppm 0.120 ppm	111 / 109 145 / 141 118 / 114
Carbon Monoxide (CO) (1-hour)[3]	20 ppm for 1 hour	35 ppm for 1 hour	2019 2020 2021	1.290 ppm 1.907 ppm 1.966 ppm	0 /0 0 / 0 0 / 0
Nitrogen Dioxide (NO_2)[3]	0.180 ppm for 1 hour	0.100 ppm for 1 hour	2019 2020 2021	0.059 ppm 0.054 ppm 0.056 ppm	0 / 0 0 / 0 0 / 0
Fine Particulate Matter ($PM_{2.5}$)[3,4]	No Separate Standard	35 µg/m^3 for 24 hours	2019 2020 2021	60.5 µg/m^3 56.6 µg/m^3 57.9 µg/m^3	* / 1 * / 2 * / 1
Particulate Matter (PM_{10})[2,4,5]	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours[7]	2019 2020 2021	44.9 µg/m^3 87.7 µg/m^3 44.2 µg/m^3	0 / 0 2 / 0 0 / 0

ppm = parts per million; PM_{10} = particulate matter 10 microns in diameter or less; µg/m^3 = micrograms per cubic meter; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less; NA = not applicable; * = insufficient data available to determine the value

Notes:
1. Maximum concentration is measured over the same period as the California Standards.
2. Data collected from the Redlands-Dearborn Monitoring Station located at 500 North Dearborn, Redlands, California 92373.
3. Data collected from the San Bernardino-4th Street Monitoring Station located at 24302 4th Street, San Bernardino, California 92410.
4. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.
5. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
6. The Federal standard for 1-hour ozone was revoked in June 2005.
7. The Federal standard for average PM_{10} was revoked in December 2006.

Sources:
California Air Resources Board, *ADAM Air Quality Data Statistics*, http://www.arb.ca.gov/adam/, accessed January 23, 2023.
California Air Resources Board, *AQMIS2: Air Quality Data*, https://www.arb.ca.gov/aqmis2/aqdselect.php, accessed January 23, 2023.

REGULATORY SETTING

Federal

United State Environmental Protection Agency

The United State Environmental Protection Agency (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.

Regional

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, along with NAAQS, 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 non-attainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as non-attainment 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 non-attainment.

CARB Air Quality and Land Use Handbook

CARB's primary goal in developing the Air Quality and Land Use Handbook is to provide information that will help keep California's children and other vulnerable population out of harm's way with respect to nearby sources of air pollutions. Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. Also, CARB community health risk assessments and regulatory programs have produced important air quality information about certain types of facilities that should be considered when siting new residences, schools, day care centers, playgrounds, and medical facilities (i.e., sensitive land uses.) Sensitive land uses deserve special attention because children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to

the non-cancer effects of air pollution. There is also substantial evidence that children are more sensitive to cancer-causing chemicals.

Assembly Bill 2588

The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (commonly known as AB 2588) established a statewide program for the inventory of air toxics emissions from individual facilities as well as requirements for risk assessment and public notification of potential health risks. It addresses public concerns that emissions from individual facilities might cause a local concentration of air toxics “Hot Spots” or an elevated risk of adverse health effects.

South Coast Air Quality Management District

Air Quality Thresholds

Under the California Environmental Quality Act (CEQA), the South Coast Air Quality Management District (SCAQMD) is an expert commenting agency on air quality within its jurisdiction or impacting its jurisdiction. Under the Federal Clean Air Act (FCAA), the SCAQMD has adopted Federal attainment plans for O_3 and PM_{10}. The SCAQMD reviews projects to ensure that they would not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any Federal attainment plan.

The *CEQA Air Quality Handbook* also provides significance thresholds for both construction and operation of projects within the SCAQMD jurisdictional boundaries. If the SCAQMD thresholds are exceeded, a potentially significant impact could result. However, ultimately the lead agency determines the thresholds of significance for impacts. If a project proposes development in excess of the established thresholds, as outlined in Table 2, *South Coast Air Quality Management District Emissions Thresholds*, a significant air quality impact may occur, and additional analysis is warranted to fully assess the significance of impacts.

Table 2
South Coast Air Quality Management District Emissions Thresholds

Phase	Pollutant (lbs/day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction	75	100	550	150	150	55
Operational	55	55	550	150	150	55
ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter up to 10 microns; $PM_{2.5}$ = particulate matter up to 2.5 microns; lbs = pounds						
Source: South Coast Air Quality Management District, *South Coast AQMD Air Quality Significance Threshold,* April 2019.						

Localized Significance Thresholds

Localized Significance Thresholds (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 July 2008) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level proposed projects. The SCAQMD provides the LST lookup tables for one-, two-, and five-acre projects emitting CO, NO_X, PM_{10}, or $PM_{2.5}$. 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 should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors.

Cumulative Emissions Thresholds

The SCAQMD's *2022 Air Quality Management Plan* (2022 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 SCAQMD *CEQA Air Quality Handbook*, project-related emissions that fall below the established construction and operational thresholds should be considered less than significant unless there is pertinent information to the contrary. If a project exceeds these emission thresholds, the SCAQMD *CEQA Air Quality Handbook* states that the significance of a project's contribution to cumulative impacts should be determined based on whether the rate of growth in average daily trips exceeds the rate of growth in population.

Local

City of Redlands

City of Redlands General Plan 2035

The City's current General Plan (the *City of Redlands General Plan 2035* [General Plan]) is a policy document, or "blueprint" for future development, adopted by the City Council to guide future growth in Redlands. The award-winning General Plan is organized around Themes (or chapters), which include policies and actions to guide future development. The seven Themes in the General Plan include: Distinctive City, Prosperous Economy, Livable Community, Connected City, Vital Environment, Healthy Community, and Sustainable Community. The State-mandated elements of Land Use, Circulation, Open Space, Conservation, Health & Safety, Noise, and Housing are all integrated within the Themes noted above. For each topic under a theme, the General Plan establishes policies that consist of principles and actions that form the supporting policies for the goal. Principles are the fundamental tenets that support each theme's goal, and are statements of broad direction, philosophy, or standards to be achieved. Actions are statements that support the implementation of the principles. The General Plan discusses air quality within the Health Community Theme. The following goal, policies, principals, and actions are applicable to the proposed project:

Healthy Community

Goal: Foster a healthy community in a safe environment that promotes active lifestyles, wellness, and access to recreation and locally sourced foods.

Air Quality Principles

7-P.44 Protect air quality within the city and support efforts for enhanced regional air quality.

7-P.45 Aim for a diverse and efficiently-operated ground transportation system that generates the minimum amount of pollutants feasible.

7-P.46 Increase average vehicle ridership during peak commute hours as a way of reducing vehicle miles traveled and peak period auto travel.

7-P.47 Cooperate in efforts to expand bus, rail, and other forms of mass transit in the portion of the South Coast Air Basin within San Bernardino County.

7-P.48 Involve environmental groups, the business community, and the general public in the formulation and implementation of programs that enhance air quality in the city and the region.

7-P.49 Protect sensitive receptors from exposure to hazardous concentrations of air pollutants.

Air Quality Actions

7-A.144 To the extent practicable and feasible, maintain a system of air quality alerts (such as through the City website, internet, e-mail to City employees, and other tools) based on South Coast Air Quality Management District forecasts. Consider providing incentives to City employees to use alternative transportation modes during alert days.

7-A.145 Provide, whenever possible, incentives for carpooling, flex time, shortened work weeks, telecommuting, and other means of reducing vehicular miles traveled.

7-A.146 Promote expansion of all forms of mass transit to the urbanized portions of San Bernardino, Orange, Los Angeles, and Riverside counties. Support public transit providers in efforts to increase funding for transit improvements to supplement other means of travel.

7-A.147 Cooperate with the ongoing efforts of the U.S. Environmental Protection Agency, the South Coast Air Quality Management District, and the State of California Air Resources Board in improving air quality in the regional air basin.

7-A.148 Develop requirements for retrofitting existing residential buildings within the 500 foot AQMD buffer along the freeway to abate air pollution, and limitations on new residential developments within the buffer.

7-A.149 Ensure that construction and grading projects minimize short-term impacts to air quality.

a. Require grading projects to provide a storm water pollution prevention plan (SWPPP) in compliance with City requirements, which include standards for best management practices (BMPs) that control pollutants from dust generated by construction activities and those related to vehicle and equipment cleaning, fueling, and maintenance;

b. Require grading projects to undertake measures to minimize mono-nitrogen oxides (NOx) emissions from vehicle and equipment operations; and
c. Monitor all construction to ensure that proper steps are implemented.

7-A.150 Establish and implement a Transportation Demand Management (TDM) Program.

7-A.151 Convert the City fleet to zero emissions vehicles where financially feasible and provide associated infrastructure for such vehicles.

7-A.152 Enforce regulations to prevent trucks from excessive idling in residential areas.

7-A.153 Require applicants for sensitive land uses (e.g. residences, schools, daycare centers, playgrounds, and medical facilities) to site development and/or incorporate design features (e.g. pollution prevention, pollution reduction, barriers, landscaping, ventilation systems, or other measures) to minimize the potential impacts of air pollution on sensitive receptors.

7-A.154 Require applicants for sensitive land uses within a Proposition 65 warning contour to conduct a health risk assessment and mitigate any health impacts to a less than significant level.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) THRESHOLDS

The environmental analysis in this memorandum is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*, as amended. 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 environmental impact if it causes one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan (refer to Impact AQ-1);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard (refer to Impact AQ-2);
- Expose sensitive receptors to substantial pollutant concentrations (refer to Impact AQ-3); and/or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (refer to Impact AQ-4).

IMPACT ANALYSIS

Impact AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The City is located within the South Coast Air Basin (Basin), which is bounded by the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east and by the Pacific Ocean to the south and west. The SCAQMD has jurisdiction in the Basin, which has a history of recorded air quality violations and is an area where both State and Federal ambient air quality standards are exceeded. Areas that meet ambient air quality standards are classified as attainment areas, while areas that

do not meet these standards are classified as nonattainment areas. The SCAQMD is required, pursuant to the Federal Clean Air Act, to reduce emissions of the air pollutants for which the Basin is in nonattainment.

In order to reduce emissions, the SCAQMD adopted the 2022 AQMP which establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving State and Federal air quality standards. The 2022 AQMP is a regional and multi-agency effort including the SCAQMD, California Air Resources Board (CARB), the Southern California Association of Governments (SCAG), and the U.S. Environmental Protection Agency (EPA).

The 2022 AQMP pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including the *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS), updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans. Additionally, the 2022 AQMP utilized information and data from the SCAG and its 2020-2045 RTP/SCS. The SCAQMD considers projects that are consistent with the 2022 AQMP, which is intended to bring the Basin into attainment for all criteria pollutants, to also have less than significant cumulative impacts.

Criteria for determining consistency with the AQMP are defined by the following indicators:

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.

a) *Would the project result in an increase in the frequency or severity of existing air quality violations?*

   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 is used as the basis for evaluating project consistency. As discussed under Impact Statements AQ-2 and AQ-3, the project's short-term construction emissions, long-term operational emissions, and localized concentrations of CO, NO_X, PM_{10}, and $PM_{2.5}$ would result in less than significant impacts during project construction and operations. Therefore, the project would not result in an increase in the frequency or severity of existing air quality violations. It is noted that 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 2022 AQMP.

b) *Would the project cause or contribute to new air quality violations?*

   As discussed below in Impacts Statements AQ-2 and AQ-3, the proposed project would result in emissions that would be below the SCAQMD's thresholds for regional and localized emissions.

Therefore, the proposed project would not have the potential to cause or affect a violation of the ambient air quality standards.

c) *Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?*

As discussed in Impact Statements AQ-2 and AQ-3, the proposed project would result in less than significant impacts with regard to localized concentrations during project construction and operation. As such, the proposed project would not delay the timely attainment of air quality standards or 2022 AQMP interim emissions reductions.

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 proposed project exceeds the assumptions utilized in preparing the forecasts presented in the 2022 AQMP. Determining whether or not a project exceeds the assumptions reflected in the 2022 AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

a) *Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP?*

A project is consistent with the 2022 AQMP in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the 2022 AQMP. In the case of the 2022 AQMP, three sources of data form the basis for the projections of air pollutant emissions: the General Plan, SCAG's regional growth forecast, and the SCAG RTP/SCS. The RTP/SCS also provides socioeconomic forecast projections of regional population growth.

The majority of site is currently designated Commercial, with the eastern portion designated Low-Density Residential (LDR) and a small area in the center of the site designated as Parks/Golf Courses.[3] The Commercial land use category designates areas for the development of a wide range of commercial uses, including neighborhood-serving stores and convenience centers, regional commercial centers, and commercial recreation. The LDR land use category designates areas intended to be developed at density of up to 6 dwelling units per acres. Park/Golf Courses includes both public and private facilities developed for outdoor active or passive recreation, trails within linear parks, and golf courses. Further, the site is currently zoned as Special Development District (EV/SD) within the East Valley Corridor Specific Plan.[4] The Special Development District is intended to provide an alternative, more flexible site planning process which encourages creative and imaginative planning of administrative professional, commercial or industrial developments,

[3] City of Redlands, *City of Redlands General Plan Land Use Map*, April 2022, https://www.cityofredlands.org/sites/main/files/file-attachments/generalplan2035.pdf?1649693557, accessed June 15, 2022.

[4] City of Redlands, *City of Redlands - Zoning Map*, April 2022, https://www.cityofredlands.org/sites/main/files/file-attachments/zoning.pdf?1649714270, accessed June 15, 2022.

or a mixture of such uses, within the framework of a single cohesive concept plan. The project proposes to construct a mixture of multi-family, townhomes, and single-family residential development for a total of 541 residential units surrounded by existing commercial and residential uses. As such, the proposed project would require City discretionary approvals of a Zone Change and a General Plan Amendment, among others. As discussed above, the project site is currently vacant with no existing commercial, residential, or park or recreational uses. The proposed residential development would be considered "an efficient use of the land" and increase the project area's development potential.

Moreover, the project would be consistent with the General Plan in regard to population and housing upon the City's approvals on the required permits. The City's population estimate as of January 1, 2022, is 72,585 persons.[5] The project would induce population growth directly through the construction of 541 residential units. Based on an average household size of 2.68 for the City of Redlands[6], the project would result in direct population increase of approximately 1,450 persons. While it is likely that future residents already live in the City, this analysis conservatively assumes all 1,450 future residents would move into the City. SCAG growth forecasts estimate the City's population to reach 80,800 persons by 2045, representing an estimated total increase of 11,300 persons between 2016 and 2045.[7] The project's potential direct population growth (1,450 persons) therefore represents approximately 12.83 percent of the City's anticipated growth between 2016 and 2045, and a nominal amount (approximately 1.73 percent) of the City's total projected 2045 population. As such, the project would be consistent with the types, intensity, and patterns of land use envisioned for the site vicinity, and would be considered consistent with the General Plan upon the City's approvals on the required permits. It should be noted that the proposed residential development would also contribute to satisfy the City's housing needs as indicated by Regional Housing Needs Assessment (RHNA). Further, the population, and housing, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City. As the SCAQMD has incorporated these same projections into the 2022 AQMP, it can be concluded that the proposed project would be consistent with the projections.

b) *Would the project implement all feasible air quality mitigation measures?*

The proposed project would not require mitigation and would result in less than significant air quality impacts; refer to Impacts AQ-2 and AQ-3. In addition, the project would comply with all applicable SCAQMD rules and regulations, including Rule 403 that requires excessive fugitive dust emissions controlled by regular watering or other dust prevention measures, and Rule 1113 that regulates the ROG content of paint. As such, the proposed project meets this AQMP consistency criterion.

[5] California Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2021-2022, with 2020 Benchmark*, http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/, accessed June 21, 2022.

[6] Ibid.

[7] Southern California Association of Governments, *2020-2045 RTP/SCS Final Connect SoCal Demographic and Growth Forecast*, adopted September, 3,2020, https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_demographics-and-growth-forecast.pdf?1606001579, accessed January 27, 2023.

c) Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?

Land use planning strategies set forth in the 2022 AQMP are primarily based on the 2020-2045 RTP/SCS. The project is located within an urbanized area, within the nearest bus stop serving OmniTrans Bus line 15 located along West Lugonia Avenue approximate 400 feet to the west of the site. Surrounding land uses include vacant land to the north, single-family residences to the east, commercial and vacant land uses to the south, and vacant land uses to the west with transportation use (i.e., Tennessee Street and Interstate 210) located further west. Further, the project would provide bicycle parking spaces and electric vehicle charging stations on-site to promote alternative transportation options. Therefore, the project would be consistent with the actions and strategies of the 2020-2045 RTP/SCS.

In conclusion, the determination of 2022 AQMP consistency is primarily concerned with the long-term influence of a project on air quality in the Basin. The proposed project would not result in a long-term impact on the region's ability to meet State and Federal air quality standards. Also, the proposed project would be consistent with the goals and policies of the 2022 AQMP for control of fugitive dust; refer to Impact AQ-2. As discussed above, the proposed project's long-term influence would also be consistent with the SCAQMD and SCAG's goals and policies, therefore, considered consistent with the 2022 AQMP.

Mitigation Measures: No mitigation is required.

Impact AQ-2: Would the project 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?

Less Than Significant Impact.

Short-Term Construction

The project involves construction activities associated with grading, building construction, paving, and architectural coating applications. The project would be constructed over 31 months, anticipated to begin in April 2024. Exhaust emission factors for typical diesel-powered heavy equipment are based on the California Emissions Estimator Model version 2022.1 (CalEEMod) program defaults. The construction equipment list was provided by the project applicant and used in the CalEEMod. Variables factored into estimating the total construction emissions include the level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported on- or off-site. The analysis of daily construction emissions has been prepared using CalEEMod. Refer to Appendix A, *Air Quality/Greenhouse Gas Emissions/Energy Data*, for the CalEEMod outputs and results. Table 3, *Short-Term Construction Emissions*, presents the anticipated daily short-term construction emissions.

Table 3
Short-Term Construction Emissions

Emissions Source	Pollutant (pounds/day)[1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 1 (2024)						
Construction Related Emissions[2]	4.24	23.60	56.60	0.06	6.90	2.23
Year 2 (2025)						
Construction Related Emissions[2]	3.83	21.40	53.60	0.06	6.79	2.13
Year 3 (2026)						
Construction Related Emissions[2]	58.60	30.00	71.40	0.08	8.44	2.74
Maximum Daily Emissions	**58.60**	**30.00**	**71.40**	**0.08**	**8.44**	**2.74**
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***

Notes:
1. Emissions were calculated using CalEEMod, version 2022.1. Higher emissions between winter and summer are presented as a conservative analysis.
2. Modeling assumptions include compliance with SCAQMD Rule 403 which requires: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.

Source: Refer to Appendix A, *Air Quality/Greenhouse Gas Emissions/Energy Data*, for detailed model data.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways. Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from demolition, site preparation, and construction is expected to be short-term and would cease upon project completion. It should be noted that most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} generated as a part of fugitive dust emissions. PM_{10} poses a serious health hazard alone or in combination with other pollutants.$PM_{2.5}$ is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. $PM_{2.5}$ is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and sulfur oxides (SO_X) combining with ammonia. $PM_{2.5}$ components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

Construction activities would comply with SCAQMD Rule 402, which prohibits fugitive dust from creating a nuisance off-site, and Rule 403, which requires that excessive fugitive dust emissions be controlled by regular watering or other dust prevention measures. Adherence to SCAQMD Rule 403 would greatly reduce PM_{10} and $PM_{2.5}$ concentrations. It should be noted that these estimated reductions were applied in CalEEMod. As depicted in Table 3, total PM_{10} and $PM_{2.5}$ emissions would not exceed the SCAQMD thresholds during construction. Thus, construction-related air quality impacts would be less than significant.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions (e.g., NO_x and CO) from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. As depicted in Table 3, construction equipment and worker vehicle exhaust emissions would be below the established SCAQMD thresholds. Therefore, air quality impacts from equipment and vehicle exhaust emission would be less than significant.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. All architectural coatings for the proposed project structures would be required to comply with SCAQMD Rule 1113. Rule 1113 provides specifications on painting practices as well as regulates the ROG content of paint. ROG emissions associated with the proposed project would be less than significant; refer to Table 3.

Total Daily Construction Emissions

In accordance with the SCAQMD Guidelines, CalEEMod was utilized to model construction emissions for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. As indicated in Table 3, criteria pollutant emissions during construction of the proposed project would not exceed the SCAQMD significance thresholds. Thus, total construction related air emissions would be less than significant.

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. 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, serpentinite and ultramafic rocks are not known to occur within the project area.[8] Thus, there would be no impact in this regard.

Long-Term (Operational) Emissions

Long-term air quality impacts would consist of mobile source emissions generated from project-related traffic, and emissions from stationary area and energy sources. Emissions associated with each of these sources were calculated and are discussed below. Operational emissions generated by the proposed project were calculated with CalEEMod and are detailed in Table 4, *Long-Term Operational Air Emissions*.

Table 4
Long-Term Operational Air Emissions

Emissions Source	Pollutant (lbs/day)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Proposed Project Summer Emissions						
Area Source Emissions	15.50	7.95	37.40	0.05	0.63	0.64
Energy Emissions	0.10	1.74	0.74	0.01	0.14	0.14
Mobile Emissions	15.00	15.50	150.00	0.38	33.6	8.70
Total Emissions[2]	***30.60***	***25.20***	***188.00***	***0.44***	***34.30***	***9.47***
Proposed Project Winter Emissions						
Area Source Emissions	12.20	7.63	3.25	0.05	0.62	0.62
Energy Emissions	0.10	1.74	0.74	0.01	0.14	0.14
Mobile Emissions	14.00	16.60	124.00	0.36	33.60	8.70
Total Emissions[2]	***26.30***	***26.00***	***128.00***	***0.42***	***34.30***	***9.45***
Peak Emissions	***30.60***	***26.00***	***188.00***	***0.44***	***34.30***	***9.47***
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Is Threshold Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***

Notes:
1. Emissions were calculated using CalEEMod, version 2022.1.
2. The numbers may be slightly off due to rounding.

Source: Refer to Appendix A, *Air Quality/Greenhouse Gas Emissions/Energy Data*, for detailed model data.

Mobile Source Emissions

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. 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. Based on the *Neighborhoods at Lugonia Village – Traffic Impact Study Scope of Work (Site Plan Update)* (Traffic Study), prepared by Michael Baker International, (dated June 16, 2023), the proposed project would result

[8] 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*, August 2000, https://ww3.arb.ca.gov/toxics/asbestos/ofr_2000-019.pdf, accessed June 21, 2022.

in approximately 3,728 average daily trips (ADT) with 228 a.m. peak hour trips and 288 p.m. peak hour trips. As shown in Table 4, emissions generated by vehicle traffic associated with project operation would not exceed established SCAQMD thresholds. Impacts from mobile source air emissions would be less than significant.

Area Source Emissions

Area source emissions would be generated from consumer products, architectural coating, and landscaping. As shown in Table 4, operational area source emissions from the proposed project would not exceed SCAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$.

Energy Source Emissions

Energy source emissions would be generated as a result of electricity and natural gas (non-hearth) usage associated with the proposed residential development. The primary use of electricity and natural gas by the project would be for space heating and cooling, water heating, ventilation, lighting, appliances, and electronics. Criteria air pollutant emissions from electricity use were not quantified since criteria pollutants emissions occur at the site of the power plant, which is off-site. Therefore, energy source emissions from electricity usage would be zero and the emissions would only be generated from consumption of the natural gas. As shown in Table 4, operational energy source emissions from the proposed project would not exceed SCAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$.

Air Quality Health Impacts

Adverse health effects induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, and the number and character of exposed individual [e.g., age, gender]). In particular, ozone precursors VOCs and NO_x affect air quality on a regional scale. Health effects related to ozone are therefore the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and, as such, translating project-generated criteria pollutants to specific health effects or additional days of nonattainment would produce meaningless results. In other words, the project's less than significant increases in regional air pollution from criteria air pollutants would have nominal or negligible impacts on human health.

As noted in the Brief of Amicus Curiae by the SCAQMD,[9] the SCAQMD acknowledged it would be extremely difficult, if not impossible to quantify health impacts of criteria pollutants for various reasons including modeling limitations as well as where in the atmosphere air pollutants interact and form. Further, as noted in the Brief of Amicus Curiae by the San Joaquin Valley Air Pollution Control District (SJVAPCD),[10] SJVAPCD has acknowledged that currently available modeling tools are not equipped to

[9] South Coast Air Quality Management District, *Application of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Party and Brief of Amicus Curiae. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno*, 2014.

[10] San Joaquin Valley Air Pollution Control District, *Application for Leave to File Brief of Amicus Curiae Brief of San Joaquin Valley Unified Air Pollution Control District in Support of Defendant and Respondent, County of Fresno and Real Party In Interest and Respondent, Friant Ranch, L.P. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno*, 2014.

provide a meaningful analysis of the correlation between an individual development project's air emissions and specific human health impacts.

The SCAQMD acknowledges that health effects quantification from ozone, as an example is correlated with the increases in ambient level of ozone in the air (concentration) that an individual person breathes. SCAQMD's Brief of Amicus Curiae states that it would take a large amount of additional emissions to cause a modeled increase in ambient ozone levels over the entire region. The SCAQMD states that based on their own modeling in the SCAQMD's *2012 Air Quality Management Plan*, a reduction of 432 tons (864,000 pounds) per day of NO_X and a reduction of 187 tons (374,000 pounds) per day of VOCs would reduce ozone levels at highest monitored site by only nine parts per billion. As such, the SCAQMD concludes that it is not currently possible to accurately quantify ozone-related health impacts caused by NO_X or VOC emissions from relatively small projects (defined as projects with regional scope) due to photochemistry and regional model limitations. As such, for the purpose of this analysis, since the project would not exceed SCAQMD thresholds for construction and operational air emissions, the project would have a less than significant impact for air quality health impacts as well.

Cumulative Conclusion

With respect to the proposed project's construction-related air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the 2022 AQMP pursuant to FCAA mandates. As such, the proposed project would comply with SCAQMD Rule 403 requirements and the adopted 2022 AQMP emissions control measures. Rule 403 requires that fugitive dust be controlled with the best available control measures in order to reduce dust so that it does not remain visible in the atmosphere beyond the property line of the proposed project. 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 2022 AQMP emissions control measures) would also be imposed on construction projects throughout the Basin, which would include related projects.

According to the *SCAQMD CEQA Air Quality Handbook*, project-related emissions that fall below the established construction and operational thresholds should be considered less than significant unless there is pertinent information to the contrary. As discussed previously, the proposed project would not result in short- or long-term air quality impacts, as emissions would not exceed the SCAQMD adopted construction or operational thresholds. Additionally, adherence to SCAQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. As a result, the proposed project would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant. Therefore, the project's incremental construction and operational impacts would be less than cumulatively considerable and impacts in this regard would be less than significant.

Mitigation Measures: No mitigation is required.

Impact AQ-3: Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children,

the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

In order to identify impacts to sensitive receptors, the SCAQMD recommends addressing localized significance thresholds (LSTs) for construction and operations impacts (area sources only). The CO hotspot analysis, following the LST analysis, addresses localized mobile source impacts.

Localized Significance Thresholds

Local Significance Thresholds (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 and 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 Source Receptor Areas (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 project is located in SRA 35, East San Bernardino Valley.

Construction

The SCAQMD guidance on applying CalEEMod to LSTs specifies the number of acres a particular piece of equipment would likely disturb per day.[11] SCAQMD provides LST thresholds for one-, two-, and five-acre site disturbance areas per day; it is noted that SCAQMD does not provide LST thresholds for projects disturbing over five acres per day. Based on and equipment provided by the project applicant and default information provided by CalEEMod, the project would actively disturb an average of approximately one acre per day. Therefore, the LST thresholds for one acres were utilized for the construction LST analysis.

The nearest sensitive receptors to the project site include the single-family residences located approximately 33 feet (10 meters) to the east of the project boundary. These sensitive land uses may be potentially affected by air pollutant emissions generated during on-site construction activities. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. As the nearest sensitive receptor is located approximately 10 meters from the project boundary, the LST values for 25 meters were used.

Table 5, *Localized Significance of Construction Emissions*, shows the localized construction-related emissions. It is noted that the localized emissions presented in Table 5 are less than those in Table 3 because localized emissions include only on-site emissions (i.e., from construction equipment and fugitive dust),

[11] The number of acres represent the total acres traversed by grading equipment. In order to properly grade a piece of land, multiple passes with equipment may be required. The disturbance acreage is based on the equipment list and days of the grading phase according to the anticipated maximum number of acres a given piece of equipment can pass over in an 8-hour workday.

and do not include off-site emissions (i.e., from worker, vendor, and hauling trips). As seen in Table 5, emissions would not exceed the LSTs for SRA 35. Construction LST impacts would be less than significant in this regard.

Operations

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). The proposed project does not include such uses. Thus, due to the lack of such emissions, no long-term localized significance threshold analysis is necessary. Operational LST impacts would be less than significant in this regard.

Table 5
Localized Significance of Construction Emissions

Maximum Emissions	Pollutant (pounds/day)[1]			
	NO_X	**CO**	**PM_{10}**	**$PM_{2.5}$**
Year 1 (2024)[2]	18.50	20.00	1.17	0.75
Year 2 (2025)[3]	16.80	19.90	0.71	0.65
Year 3 (2026)[4]	25.30	32.80	1.03	0.95
Maximum Daily Emissions[5]	**25.30**	**32.80**	**1.03**	**0.95**
Localized Significance Threshold[6]	*118.0*	*775.0*	*4.0*	*4.0*
Thresholds Exceeded?	***No***	***No***	***No***	***No***

Notes:
1. Emissions were calculated using CalEEMod, version 2022.1. Winter emissions represent worst-case.
2. Maximum on-site daily emissions occur during building construction phase for NO_X, CO, and $PM_{2.5}$ and grading phase for PM_{10} in Year 1.
3. Maximum on-site daily emissions occur during building construction phase for NO_X, CO, PM_{10}, and $PM_{2.5}$ in Year 2
4. Building construction, paving, and architectural coating phases are expected to occur simultaneously in Year 3. As such, maximum on-site daily emissions shown for Year 3 is the sum of all on-site emissions occurring during building construction, paving, and architectural coating phases.
5. The maximum daily construction emissions includes fugitive dust control measures required by SCAQMD Rule 403, which includes the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.
6. The Localized Significance Threshold was determined using Appendix C of the SCAQMD *Final Localized Significant Threshold Methodology* guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold was based on the anticipated daily acreage disturbance for construction (more than one acre per day), the distance to sensitive receptors (less than 25 meters), and the source receptor area (SRA 35, East San Bernardino Valley).

Source: Refer to Appendix A, *Air Quality/Greenhouse Gas Emissions/Energy Data*, for detailed model data.

Carbon Monoxide Hotspots

CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection

may reach unhealthful levels (i.e., adversely affecting residents, school children, hospital patients, the elderly, etc.).

The SCAQMD requires a quantified assessment of CO hotspots when a project increases the volume-to-capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service LOS D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersections.

The Basin is designated as an attainment/maintenance area for the Federal CO standards and an attainment area for State standards. There has been a decline in CO emissions even though vehicle miles traveled on U.S. urban and rural roads have increased. Nationwide estimated anthropogenic CO emissions have decreased 68 percent between 1990 and 2014. In 2014, mobile sources accounted for 82 percent of the nation's total anthropogenic CO emissions.[12] CO emissions have continued to decline since this time. The Basin was re-designated as attainment in 2007 and is no longer addressed in the SCAQMD's AQMP. Three major control programs have contributed to the reduced per-vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance programs.

A detailed CO analysis was conducted in the Federal Attainment Plan for Carbon Monoxide (CO Plan) for the SCAQMD's *2003 Air Quality Management Plan*, which is the most recent AQMP that addresses CO concentrations. The locations selected for microscale modeling in the CO Plan are worst-case intersections in the Basin and would likely experience the highest CO concentrations. Thus, CO analysis within the CO Plan is utilized in a comparison to the proposed project, since it represents a worst-case scenario with heavy traffic volumes within the Basin.

Of these locations, the Wilshire Boulevard/Veteran Avenue intersection in Los Angeles experienced the highest CO concentration (4.6 parts per million [ppm]), which is well below the 35-ppm 1-hr CO Federal standard. The Wilshire Boulevard/Veteran Avenue intersection is one of the most congested intersections in Southern California with an ADT volume of approximately 100,000 vehicles per day. As the CO hotspots were not experienced at the Wilshire Boulevard/Veteran Avenue intersection, it can be reasonably inferred that CO hotspots would not be experienced at any intersections within the City near the project site due to the comparatively low volume of traffic that would occur as a result of project implementation. Therefore, impacts would be less than significant in this regard.

Mitigation Measures: No mitigation is required.

Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number 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. The proposed project does not include any uses identified by the SCAQMD as being associated with odors.

[12] United States Environmental Protection Agency, *Carbon Monoxide Emissions*, https://cfpub.epa.gov/roe/indicator_pdf.cfm?i=10, accessed by June 21, 2022.

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust and architectural coatings. However, construction-related odors would be short-term in nature and cease upon project completion. In addition, the project would be required to comply with the California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, which minimizes the idling time of construction equipment either by shutting it off when not in use or by reducing the time of idling to no more than five minutes. This would further reduce the detectable odors from heavy-duty equipment exhaust. The project would also comply with the SCAQMD Rule 1113, which would minimize odor impacts from ROG emissions during architectural coating. Any impacts to existing adjacent land uses would be short-term and are less than significant.

Mitigation Measures: No mitigation is required.

GREENHOUSE GAS EMISSIONS

GLOBAL CLIMATE CHANGE

California is a substantial contributor of global greenhouse gases (GHGs), emitting over 369 million metric tons of carbon dioxide equivalent ($MTCO_2e$) per year.[13] Methane (CH_4) is also an important GHG that potentially contributes to global climate change. GHGs are global in their effect, which is to increase the earth's ability to absorb heat in the atmosphere. As primary GHGs have a long lifetime in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission. Every nation emits GHGs and as a result 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.

The impact of human activities on global climate change is apparent in the observational record. Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO_2, CH_4, and nitrous oxide (N_2O) from before the start of industrialization (approximately 1750), to over 650,000 years ago. For that period, it was found that CO_2 concentrations ranged from 180 to 300 parts per million (ppm). For the period from approximately 1750 to the present, global CO_2 concentrations increased from a pre-industrialization period concentration of 280 to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range. As of January 2023, the highest monthly average concentration of CO_2 in the atmosphere was recorded approximately at 421 ppm.[14]

The Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400 to 450 ppm carbon dioxide equivalent (CO_2e)[15] concentration is required to keep global mean

[13] California Air Resources Board, *California Greenhouse Gas Emissions for 2000 to 2020,* https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/2000-2020_ghg_inventory_trends.pdf , accessed January 24, 2023.

[14] Scripps Institution of Oceanography, *Carbon Dioxide Concentration at Mauna Loa Observatory*, https://scripps.ucsd.edu/programs/keelingcurve/, accessed January 27, 2023.

[15] Carbon Dioxide Equivalent (CO_2e) – A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

warming below 2 degrees Celsius (°C), which in turn is assumed to be necessary to avoid dangerous climate change.

REGULATORY SETTING

Federal

To date, no national standards have been established for nationwide GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, requires the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.

- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.

- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

U.S. Environmental Protection Agency Endangerment Finding. The U.S. Environmental Protection Agency's (EPA) authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six GHGs (CO_2, CH_4, N_2O, hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride [SF_6]) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and the EPA's assessment of the scientific evidence that form the basis for the EPA's regulatory actions.

Presidential Executive Order 13783. Presidential Executive Order 13783, Promoting Energy Independence and Economic Growth (March 28, 2017), orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, the George W. Bush Administration issued Executive Order 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from

motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Barack Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion metric tons and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program.

In March 2021, The EPA and NHTSA adopted the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule. The SAFE Vehicles Rule sets tough but feasible fuel economy and CO_2 standards that increase 1.5 percent in stringency each year from model years 2021 through 2026. These standards apply to both passenger cars and light trucks and will continue the nation's progress toward energy independence and CO_2 reduction, while recognizing the realities of the marketplace and consumers' interest in buying vehicles that meet all of their diverse needs.

On December 21, 2021, NHTSA finalizes the Corporate Average Fuel Economy (CAFE) Preemption rulemaking to withdraw its portions of the so-called SAFE I Rule. The final rule concludes that the SAFE I Rule overstepped the agency's legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests. The final rule ensures that the SAFE I Rule will no longer form an improper barrier to states exploring creative solutions to address their local communities' environmental and public health challenges.

On March 31, 2022, NHTSA finalizes CAFE Standards for model years 2024-2026. The final rule establishes standards that would require an industry-wide fleet average of approximately 49 miles-per-gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025, and 10 percent annually for model year 2026. The agency projects

the final standards will save consumers nearly $1,400 in total fuel expenses over the lifetimes of vehicles produced in these model years and avoid the consumption of about 234 billion gallons of gas between model years 2030 to 2050. The agency also projects the standards will cut GHG from the atmosphere, reduce air pollution, and reduce the country's dependence on oil.

On August 16, 2022, NHTSA announces notice of intent to prepare an Environmental Impact Statement (EIS) for model years 2027 and beyond CAFE Standards and model years 2029 and beyond Heavy-Duty Pickup Trucks and Vans Vehicle Fuel Efficiency Improvement Program Standards. On September 19, 2022, NHTSA announces notice of intent to prepare an EIS for model years 2030 and beyond Medium-And Heavy-Duty Efficiency Improvement Program Standards.

State

The State of California has adopted various administrative initiatives and legislation relating to climate change, much of which set aggressive goals for GHG emissions reductions statewide. Although lead agencies must evaluate climate change and GHG emissions of projects subject to California Environmental Quality Act (CEQA), the CEQA Guidelines do not require or suggest specific methodologies for performing an assessment or specific thresholds of significance and do not specify GHG reduction mitigation measures. Instead, the guidelines allow lead agencies to choose methodologies and make significance determinations based on substantial evidence, as discussed in further detail below. No state agency has promulgated binding regulations for analyzing GHG emissions, determining their significance, or mitigating significant effects in CEQA documents. Thus, lead agencies exercise their discretion in determining how to analyze GHGs.

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 as a result 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.

Executive Order S-3-05. 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 (Cal/EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary also submits 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 Cal/EPA created the California Climate Action Team (CAT), 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.

Executive Order B-30-15. Executive Order B-30-15 added the interim target to reduce statewide GHG emissions 40 percent below 1990 levels by 2030.

Senate Bill 32 (SB 32). Signed into law in September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

Executive Order S-13-08. Executive Order S-13-08 seeks to enhance the State's management of climate impacts including sea level rise, increased temperatures, shifting precipitation, and extreme weather events by facilitating the development of State's first climate adaptation strategy. This will result in consistent guidance from experts on how to address climate change impacts in the State of California.

California Global Warming Solutions Act (Assembly Bill 32). The primary act that has driven GHG regulation and analysis in California include the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599), which instructs the California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The act directed CARB to set a GHG emissions limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner. The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020.

Senate Bill 97. SB 97, signed in August 2007 (Chapter 185, Statutes of 2007; PRC Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA.

OPR published a technical advisory recommending that CEQA lead agencies make a good-faith effort to estimate the quantity of GHG emissions that would be generated by a proposed project. Specifically, based on available information, CEQA lead agencies should estimate the emissions associated with project-related vehicular traffic, energy consumption, water usage, and construction activities to determine whether project-level or cumulative impacts could occur, and should mitigate the impacts where feasible. OPR requested CARB technical staff to recommend a method for setting CEQA thresholds of significance as described in CEQA Guidelines Section 15064.7 that will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the State.

The Natural Resources Agency adopted the CEQA Guidelines Amendments prepared by OPR, as directed by SB 97. On February 16, 2010, the Office of Administration Law approved the CEQA Guidelines Amendments and filed them with the Secretary of State for inclusion in the California Code of Regulations. The CEQA Guidelines Amendments became effective on March 18, 2010.

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 allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPOs 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 the years 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. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects may not be eligible for funding programmed after January 1, 2012.

Senate Bill 1368. SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed into law 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 the 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.

CARB Scoping Plan. On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap 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 GHG emissions by 174 $MMTCO_2e$, or approximately 30 percent, from the State's projected 2020 emissions level of 596 $MMTCO_2e$ under a business-as-usual (BAU)[16] scenario. This is a reduction of 42 $MMTCO_2e$, 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 (e.g., transportation, electrical power, commercial and residential, industrial, etc.). 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.

AB 32 requires CARB to update the Scoping Plan at least once every five years. CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes recent science related to climate change, including anticipated impacts to California and the levels of GHG reduction necessary to likely avoid risking irreparable damage. It identifies the actions California has already taken

[16] "Business-as-Usual" refers to emissions that would be expected to occur in the absence of GHG reductions. See http://www.arb.ca.gov/cc/inventory/data/bau.htm. Note that there is significant controversy as to what BAU means. In determining the GHG 2020 limit, CARB used the above as the "definition." It is broad enough to allow for design features to be counted as reductions.

to reduce GHG emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32. The Scoping Plan update also looks beyond 2020 toward the 2050 goal, established in Executive Order S-3-05, and observes that "a mid-term statewide emission limit will ensure that the State stays on course to meet our long-term goal." The Scoping Plan update did not establish or propose any specific post-2020 goals, but identified such goals adopted by other governments or recommended by various scientific and policy organizations. In December 2017, CARB approved the *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target*. This update focuses on implementation of a 40 percent reduction in GHGs by 2030 compared to 1990 levels.

On December 15, 2022, CARB released the *2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan), which identifies the strategies achieving carbon neutrality by 2045 or earlier. The 2022 Scoping Plan contains the GHG reductions, technology, and clean energy mandated by statutes. The 2022 Scoping Plan was developed to achieve carbon neutrality by 2045 through a substantial reduction in fossil fuel dependence, while at the same time increasing deployment of efficient non-combustion technologies and distribution of clean energy. The plan would also reduce emissions of short-lived climate pollutants (SLCPs) and would include mechanical CO_2 capture and sequestration actions, as well as emissions and sequestration from natural and working lands and nature-based strategies. Under 2022 Scoping Plan, by 2045, California aims to cut GHG emissions by 85 percent below 1990 levels, reduce smog-forming air pollution by 71 percent, reduce the demand for liquid petroleum by 94 percent compared to current usage, improve health and welfare, and create millions of new jobs. This plan also builds upon current and previous environmental justice efforts to integrate environmental justice directly into the plan, to ensure that all communities can reap the benefits of this transformational plan. Specifically, this plan:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 and a reduction in anthropogenic emissions by 85 percent below 1990 levels.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as driving principles throughout the document.
- Incorporates the contribution of natural and working lands (NWL) to the State's GHG emissions, as well as their role in achieving carbon neutrality.
- Relies on the most up-to-date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration, as well as direct air capture.
- Evaluates the substantial health and economic benefits of taking action.
- Identifies key implementation actions to ensure success.

Achieving the 2030 target under the updated Scoping Plan will also spur the transformation of the California economy and fix its course securely on achieving an 80 percent reduction in GHG emissions by 2050 (compared to 1990 levels), consistent with the global consensus of the scale of reductions needed to stabilize atmospheric GHG concentrations at 450 ppm CO_2 and reduce the likelihood of catastrophic climate change.

Currently, global levels are at just above 421 ppm.[17] Table 6, *California State Climate Change Legislation*, provides a brief overview of other California legislation relating to climate change that may affect emissions associated with the proposed project.

Table 6
California State Climate Change Legislation

Legislation	Description
Assembly Bill 1493 and Advanced Clean Cars Program	Assembly Bill 1493 ("the Pavley Standard") (Health and Safety Code Sections 42823 and 43018.5) aims to reduce GHG emissions from noncommercial passenger vehicles and light-duty trucks of model years 2009 to 2016. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer CO_2e emissions and 75 percent fewer smog-forming emissions.
Low Carbon Fuel Standard	Executive Order S-01-07 (2007) requires a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California. The regulation took effect in 2010 and is codified at Title 17, California Code of Regulations, Sections 95480–95490. The Low Carbon Fuel Standard will reduce GHG emissions by reducing the carbon intensity of transportation fuels used in California by at least 10 percent by 2020.
Renewables Portfolio Standard (Senate Bill X1-2, Senate Bill 350, and Senate Bill 100)	California's Renewables Portfolio Standard (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020. The 33 percent standard is consistent with the RPS goal established in the Scoping Plan. The passage of Senate Bill 350 in 2015 updates the RPS to require the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. The bill will make other revisions to the RPS program and to certain other requirements on public utilities and publicly owned electric utilities. The passage of Senate Bill 100 in 2018 further requires achieving 60 percent renewable energy resources target by 2030, and 100 percent renewable energy resources target by 2045.
Senate Bill 375*	SB 375 took effect in 2008 and provides a new planning process to coordinate land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction goals established in AB 32. SB 375 requires metropolitan planning organizations to incorporate a sustainable communities' strategy in their regional transportation plans that will achieve GHG emissions reduction targets by reducing vehicle miles traveled from light-duty vehicles through the development of more compact, complete, and efficient communities. SB 375 requires CARB to periodically update the targets, no later than every 8 years. CARB is in the process of updating targets, with the intent to make them effective in 2018. Sustainable Communities Strategy (SCSs) adopted in 2018 would be subject to the updated targets.
California Building Energy Efficiency Standards	In general, the California Building Energy Efficiency Standards require the design of building shells and building components to conserve energy. The California Energy Commission updates the Building Energy Efficiency Standards every three years by working with stakeholders in a public and transparent process. The 2022 Title 24 becomes effective on January 1, 2023. In general, Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2022 Title 24 standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expand solar photovoltaic and battery storage standards, strengthen ventilation standards, and more. Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Title 24 standards.

[17] Scripps Institution of Oceanography, *Carbon Dioxide Concentration at Mauna Loa Observatory*, https://scripps.ucsd.edu/programs/keelingcurve/, accessed June 20, 2022.

California Green Building Standards	The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code developed and adopted by the California Building Standards Commission and the Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency/conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2023.
Senate Bill 32 (Amendments to California Global Warming Solutions Act of 2006: Emission Limit)	Signed into law in September 2016, SB 32 codifies the 2030 target in the recent Executive Order B-30-15. The bill authorizes the state board to adopt an interim GHG emissions level target to be achieved by 2030. SB 32 states that the intent is for the legislature and appropriate agencies to adopt complementary policies which ensure that the long-term emissions reductions advance specified criteria. In December 2017, CARB approved the *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target* that provides guidance for compliance with SB 32.
*Senate Bill 375 is codified at Government Code Sections 65080, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, 65588, 14522.1, 14522.2, and 65080.01, as well as at Public Resources Code Sections 21061.3 and 21159.28 and Chapter 4.2.	

Regional

South Coast Air Quality Management District

In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds.[18] Within its October 2008 document, the SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 $MTCO_2e$ per year. Under this proposal, commercial/residential projects that emit fewer than 3,000 $MTCO_2e$ per year would be assumed to have a less than significant impact on climate change. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold of 10,000 $MTCO_2e$ per year for stationary source/industrial projects where the SCAQMD is the lead agency. However, the SCAQMD has yet to adopt a GHG significance threshold for application by local lead agencies in their review of land use development projects (e.g., residential/commercial projects).

Local

City of Redlands

City of Redlands General Plan 2035

The City's current General Plan (the Redlands General Plan 2035 [General Plan]) is a policy document, or "blueprint" for future development, adopted by the City Council to guide future growth in Redlands. The award-winning General Plan is organized around Themes (or chapters), which include policies and actions to guide future development. The seven Themes in the General Plan include: Distinctive City, Prosperous Economy, Livable Community, Connected City, Vital Environment, Healthy Community, and Sustainable Community. The State-mandated elements of Land Use, Circulation, Open Space, Conservation, Health &

[18] South Coast Air Quality Management District, *Draft Guidance Document—Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, October 2008.

Safety, Noise, and Housing are all integrated within the Themes noted above. For each topic under a theme, the General Plan establishes policies that consist of principles and actions that form the supporting policies for the goal. Principles are the fundamental tenets that support each theme's goal, and are statements of broad direction, philosophy, or standards to be achieved. Actions are statements that support the implementation of the principles. The General Plan discusses GHG Reduction within the Sustainability Community Theme. The following goal, policies, principals are applicable to the proposed project:

Sustainable Community

Goal: Serve as an environmental steward; ensure that residents enjoy clean air and water; make efficient use of energy, water, and land resources; and grow in a manner in which increased population does not negatively impact resources.

Greenhouse Gas Principles

8-P.8 Promote sustainability by reducing the community's greenhouse gas (GHG) emissions and festering green development patterns- including buildings, sites, and landscapes.

8-P.9 Undertake initiatives to enhance sustainability by reducing the community's GHG emissions.

City of Redlands Climate Action Plan

The *City of Redlands Climate Action Plan* (CAP) is designed to reinforce the City's commitment to reducing GHG emissions and demonstrate how the City would comply with State of California's GHG emission reduction standards. As a qualified GHG reduction strategy, the CAP will also enable streamlined environmental review of future development projects, in accordance with the CEQA. The CAP reflects the City's commitment to the core values presented in the General Plan, and links elements of the plan with the goal of GHG reduction. The CAP has been prepared concurrently with the updated General Plan, reflecting the City's most current land use and transportation strategy, and GHG implications of various General Plan's goals and policies. The General Plan includes strategies such as transit-oriented and mixed-use development, integrated transportation and land use planning, promotion of bicycle and pedestrian movements, and parking and transportation demand management. It also includes goals and policies to promote energy efficiency, waste reduction, and resource conservation and recycling. These strategies, goals, and policies will result in GHG reduction compared to baseline trends. As a document adopted by the City of Redlands City Council, the CAP applies to the municipal limits of the City of Redlands. The CAP used a linear trajectory in emissions reductions between 2030 and 2050 to determine the 2035 target of 5 $MTCO_2e$ per capita per year. The CAP also has a Year 2030 GHG emissions target of 6.0 per capita per year.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) THRESHOLDS

The environmental analysis in this memorandum is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*, as amended. 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 environmental impact if it causes one or more of the following to occur:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (refer to Impact GHG-1); and/or

- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (refer to Impact GHG-2).

Methodology

The City has not adopted a numerical significance threshold for assessing impacts related to GHG emissions. Similarly, the SCAQMD, CARB, or any other State or regional agency have not yet adopted a numerical significance threshold for assessing GHG emissions that is applicable to the project. Since there is no applicable adopted or accepted numerical threshold of significance for GHG emissions, the methodology for evaluating the project's impacts related to GHG emissions focuses on its consistency with Statewide, regional, and local plans adopted for the purpose of reducing and/or mitigating GHG emissions. This evaluation of consistency with such plans is the sole basis for determining the significance of the project's GHG-related impacts on the environment.

Notwithstanding, for informational purposes, the analysis also calculates the amount of GHG emissions that would be attributable to the project using recommended air quality models, as described below. The primary purpose of quantifying the project's GHG emissions is to satisfy State CEQA Guidelines Section 15064.4(a), which calls for a good-faith effort to describe and calculate emissions. The estimated emissions inventory is also used to determine if there would be a reduction in the project's incremental contribution of GHG emissions as a result of compliance with regulations and requirements adopted to implement plans for the reduction or mitigation of GHG emissions. However, the significance of the project's GHG emissions impacts is not based on the amount of GHG emissions resulting from the project.

IMPACT ANALYSIS

Impact GHG-1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact GHG-2: Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact.

Project-Related Sources of Greenhouse Gases

The proposed project would result in direct and indirect emissions of CO_2, N_2O, and CH_4, and would not result in other GHGs that would facilitate a meaningful analysis. Therefore, this analysis focuses on these three forms of GHG emissions. Direct project-related GHG emissions include emissions from construction activities, area sources, and mobile sources, while indirect sources include emissions from energy consumption, water demand, and solid waste generation. The most recent version of the California Emissions Estimator Model (CalEEMod), version 2022.1, was used to calculate direct and indirect project related GHG emissions. Table 7, *Estimated Greenhouse Gas Emissions*, presents the estimated CO_2, N_2O,

and CH_4 emissions of the proposed project. CalEEMod outputs are contained within Appendix A, *Air Quality/Greenhouse Gas Emissions/Energy Data*.

Table 7
Estimated Greenhouse Gas Emissions

Source	CO2	CH4	N2O	Refrigerants	CO2e
	Metric Tons/year1				
Direct Emissions					
• Construction (amortized over 30 years)	119.17	0.01	0.01	0.12	121.13
• Area Source	121.00	<0.01	<0.01	0.00	121.00
• Mobile Source	6,131.00	0.28	0.30	9.57	6,235.00
• Refrigerants	0.00	0.00	0.00	0.65	0.65
Total Direct Emissions[2]	***6,371.17***	***0.30***	***0.32***	***10.34***	***6,477.78***
Indirect Emissions					
• Energy	832.00	0.08	0.01	0.00	836.00
• Solid Waste	9.02	0.30	0.00	0.00	31.50
• Water Demand	34.70	0.74	0.02	0.00	58.40
Total Indirect Emissions[2]	***875.72***	***1.12***	***0.03***	***0.00***	***925.90***
Total Project-Related Emissions[3]	***7,403.68 $MTCO_2e$ per year***				
Emissions per Service Population per Year	***5.1 $MTCO_2e$ per year***				
City of Redlands CAP YEAR 2030 Service Population Threshold Per Capita Per Year	***6.0 $MTCO_2e$ per year***				
Exceed Threshold?	***No***				

Notes:
1. Emissions calculated using California Emissions Estimator Model Version 2022.1 (CalEEMod) computer model.
2. Totals may be slightly off due to rounding.

Refer to Appendix A, *Air Quality/Greenhouse Gas Emissions/Energy Data*, for detailed model data.

Direct Project-Related Source of Greenhouse Gases

Construction Emissions. Construction GHG emissions are amortized (i.e., total construction emissions divided by the lifetime of the project, assumed to be 30 years),[19] then added to the operational emissions. As seen in Table 7, construction of the proposed project would result in a total of 121.13 $MTCO_2e$ (amortized over 30 years) which represents a total of approximately 3,634.00 $MTCO_2e$ from construction activities.

Area Source. The project would result in nominal area source emissions; refer to Table 7. Area source emissions would be generated due to an increased demand for natural gas associated with the development of the proposed project. The primary use of natural gas producing area source emissions by the project would be for consumer products, architectural coating, and landscaping.

Mobile Source Emissions. According to the Traffic Study, typical daily activities are forecast to generate 3,728 average daily trips, including 228 trips during the a.m. peak hour and 288 trips during the p.m. peak

[19] In accordance with the SCAQMD guidance, projected GHGs from construction have been quantified and amortized over 30 years, which is the number of years considered to represent the life of the project. The amortized construction emissions are added to the annual average operational emissions.

hour, which equates to approximately 6,235.00 $MTCO_2e$/year of mobile source-generated GHG emissions as modeled in CalEEMod; refer to Table 7.

Refrigerant. Refrigerants are substances used in equipment for air conditioning and refrigeration. Most of the refrigerants used today are HFCs or blends thereof, which can have high global warming potentials (GWP) values. All equipment that uses refrigerants has a charge size (i.e., quantity of refrigerant the equipment contains), and an operational refrigerant leak rate, and each refrigerant has a GWP that is specific to that refrigerant. CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime, and then derives average annual emissions from the lifetime estimate. As noted in Table 7, the proposed project would result in 0.65 $MTCO_2e$ per year of GHG emissions from refrigerants.

Indirect Project-Related Source of Greenhouse Gases

Energy Consumption. Energy consumption emissions were calculated using the CalEEMod model and project-specific land use data. Electricity would be provided to the project site via Southern California Edison (SCE). The project would indirectly result in 836.00 $MTCO_2e$ per year of GHG emissions due to energy consumption; refer to Table 7.

Water Demand. The proposed project's operations would result in a demand of approximately 26.69 million gallons of water per year. Emissions from indirect energy impacts due to water supply would result in 58.40 $MTCO_2e$/year; refer to Table 7.

Solid Waste. The proposed project would comply to AB 341 that recycle 75 precent of the waste. Solid waste associated with operations of the proposed project would result in 31.50 $MTCO_2e$/year; refer to Table 7.

Total Project-Related Sources of Greenhouse Gases

As shown in Table 7, the total amount of proposed project-related GHG emissions from direct and indirect sources combined would total 7,403.68 $MTCO_2e$/year. Based on an average household size of 2.68 for the City of Redlands[20], the project would result in direct population increase of approximately 1,450 persons. As such, the project's emission would be 5.1 $MTCO_2e$ per service population per year, which is below the CAP's Year 2030 6.0 $MTCO_2e$ per service population per year target. As such, impacts would be less than significant.

Consistency with Applicable GHG Plans, Policies, or Regulations

The GHG plan consistency analysis for the project is based on the project's consistency with the City's General Plan and CAP, SCAG's 2020-2045 RTP/SCS, and CARB's 2022 Scoping Plan. The General Plan contains goals and principles to reduce GHG emissions in the City. The 2020-2045 RTP/SCS is a regional growth management strategy that targets per-capita GHG reduction from passenger vehicles and light-duty trucks in the Southern California region. The 2020-2045 RTP/SCS incorporates local land use projections

[20] Ibid.

and circulation networks in city and county general plans. The 2022 Scoping Plan identifies strategies to achieve carbon neutrality by 2045 or earlier.

Consistency with the SCAG 2020-2045 RTP/SCS

On September 3, 2020, the Regional Council of SCAG formally adopted the 2020-2045 RTP/SCS. The 2020-2045 RTP/SCS includes performance goals that were adopted to help focus future investments on the best-performing projects, as well as different strategies to preserve, maintain, and optimize the performance of the existing transportation system. Table 8, *Consistency with the 2020-2045 RTP/SCS* shows the project's consistency with these five strategies found within the 2020-2045 RTP/SCS. As shown therein, the proposed project would be consistent with the GHG emission reduction strategies contained in the 2020-2045 RTP/SCS.

Table 8
Consistency with the 2020-2045 RTP/SCS

Reduction Strategy	Applicable Land Use Tools	Project Consistency Analysis
Focus Growth Near Destinations and Mobility Options		
• Emphasize land use patterns that facilitate multimodal access to work, educational and other destinations • Focus on a regional jobs/housing balance to reduce commute times and distances and expand job opportunities near transit and along center-focused main streets • Plan for growth near transit investments and support implementation of first/last mile strategies • Promote the redevelopment of underperforming retail developments and other outmoded nonresidential uses • Prioritize infill and redevelopment of underutilized land to accommodate new growth, increase amenities and connectivity in existing neighborhoods • Encourage design and transportation options that reduce the reliance on and number of solo car trips (this could include mixed uses or locating and orienting close to existing destinations) • Identify ways to "right size" parking requirements and promote alternative parking strategies (e.g., shared parking or smart parking)	**Center Focused Placemaking, Priority Growth Areas (PGA), Job Centers, High Quality Transit Areas (HQTAs), Transit Priority Areas (TPA), Neighborhood Mobility Areas (NMAs), Livable Corridors, Spheres of Influence (SOIs), Green Region, Urban Greening.**	**Consistent.** The proposed project would involve a mixture of multi-family, townhomes, and single-family residential development on an undeveloped land. The project site is located in an urbanized area and within walking and biking distance of existing residential and commercial developments. As such, future residents from the proposed project would be more accessible to work, educational and other destinations, reduce commute times and distances, and thereby reducing greenhouse gas emissions associated with transportation. Therefore, the project would focus growth near destinations and mobility options. The project would be consistent with the strategy.
Promote Diverse Housing Choices		
• Preserve and rehabilitate affordable housing and prevent displacement • Identify funding opportunities for new workforce and affordable housing development	**PGA, Job Centers, HQTAs, NMA, TPAs, Livable Corridors, Green Region, Urban**	**Consistent.** As discussed above, the project would provide three types of residential development: Multi-family residences, townhomes, and single-family residences. As such, the project

• Create incentives and reduce regulatory barriers for building context sensitive accessory dwelling units to increase housing supply Provide support to local jurisdictions to streamline and lessen barriers to housing development that supports reduction of greenhouse gas emissions	**Greening.**	would be consistent with this strategy.
Leverage Technology Innovations		
• Promote low emission technologies such as neighborhood electric vehicles, shared rides hailing, car sharing, bike sharing and scooters by providing supportive and safe infrastructure such as dedicated lanes, charging and parking/drop-off space • Improve access to services through technology—such as telework and telemedicine as well as other incentives such as a "mobility wallet," an app-based system for storing transit and other multi-modal payments • Identify ways to incorporate "micro-power grids" in communities, for example solar energy, hydrogen fuel cell power storage and power generation	**HQTA, TPAs, NMA, Livable Corridors.**	**Consistent.** The project would install electric vehicle charging stations and provide bike storage spaces in accordance with the 2022 Title 24 standards and CALGreen Code. Therefore, the proposed project would leverage technology innovations to promote alternative modes of transportation and help the City, County, and State meet their GHG reduction goals. The project would be consistent with this reduction strategy.
Support Implementation of Sustainability Policies		
• Pursue funding opportunities to support local sustainable development implementation projects that reduce greenhouse gas emissions • Support statewide legislation that reduces barriers to new construction and that incentivizes development near transit corridors and stations • Support local jurisdictions in the establishment of Enhanced Infrastructure Financing Districts (EIFDs), Community Revitalization and Investment Authorities (CRIAs), or other tax increment or value capture tools to finance sustainable infrastructure and development projects, including parks and open space • Work with local jurisdictions/communities to identify opportunities and assess barriers to implement sustainability strategies • Enhance partnerships with other planning organizations to promote resources and best practices in the SCAG region • Continue to support long range planning efforts by local jurisdictions • Provide educational opportunities to local decisions makers and staff on new tools, best practices and policies related to implementing the Sustainable Communities Strategy	**Center Focused Placemaking, Priority Growth Areas (PGA), Job Centers, High Quality Transit Areas (HQTAs), Transit Priority Areas (TPA), Neighborhood Mobility Areas (NMAs), Livable Corridors, Spheres of Influence (SOIs), Green Region, Urban Greening.**	**Consistent.** As previously discussed, the proposed project would install electric vehicle charging stations and provide bike storage spaces to promote alternative modes of transportation. Further, the project would comply with sustainable development practices included in the 2022 Title 24 standards and CALGreen Code, including installation of vanpooling and carpooling parking spaces, installation of high-efficient lighting, and implementation of water-efficiency irrigation and drought-tolerant landscaping. Thus, the project would be consistent with this reduction strategy.
Promote a Green Region		

• Support development of local climate adaptation and hazard mitigation plans, as well as project implementation that improves community resiliency to climate change and natural hazards • Support local policies for renewable energy production, reduction of urban heat islands and carbon sequestration • Integrate local food production into the regional landscape • Promote more resource efficient development focused on conservation, recycling and reclamation • Preserve, enhance and restore regional wildlife connectivity • Reduce consumption of resource areas, including agricultural land • Identify ways to improve access to public park space	**Green Region, Urban Greening, Greenbelts and Community Separators.**	**Consistent.** The proposed project consists of a residential development in an urbanized area and would not interfere with regional wildlife connectivity or concert agricultural land. The project would be required to comply with 2022 Title 24 standards and CALGreen Code, which would help reduce energy consumption and reduce GHG emissions. Thus, the project would support resource efficient development that reduces energy consumption and GHG emissions. The project would be consistent with this reduction strategy.
Source: Southern California Association of Governments, *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy – Connect SoCal*, September 3, 2020.		

Consistency with the 2022 CARB Scoping Plan

The 2022 Scoping Plan identifies reduction measures necessary to achieve the goal of carbon neutrality by 2045 or earlier. Actions that reduce GHG emissions are identified for each AB 32 inventory sector. Provided in Table 9, *Consistency with the 2022 Scoping Plan: AB 32 GHG Inventory Sectors*, is an evaluation of applicable reduction actions/strategies by emissions source category to determine how the project would be consistent with or exceed reduction actions/strategies outlined in the 2022 Scoping Plan.

Table 9
Consistency with the 2022 Scoping Plan: AB 32 GHG Inventory Sectors

Actions and Strategies	Project Consistency Analysis
Smart Growth / Vehicles Miles Traveled (VMT)	
Reduce VMT per capita to 25% below 2019 levels by 2030, and 30% below 2019 levels by 2045	**Consistent.** The proposed project would involve a mixture of multi-family, townhomes, and single-family residential development on an undeveloped land. The project site is located in an urbanized area and within walking and biking distance of existing residential and commercial developments. As such, future residents from the proposed project would be more accessible to work, educational and other destinations, reducing VMT. As such, the project would be consistent with this action.
New Residential and Commercial Buildings	
All electric appliances beginning 2026 (residential) and 2029 (commercial), contributing to 6 million heat pumps installed statewide by 2030	**Consistent**. The project is expected to consist of natural gas heating and/or cooking on-site. The City of Redlands has not adopted an ordinance or program limiting the use of natural gas for on-site cooking and/or heating. However, if adopted, the project would comply with the applicable goals or policies limiting the use of natural gas equipment in the future. As such, the project would be consistent with this action.
Non-combustion Methane Emissions	
Divert 75% of organic waste from landfills by 2025	**Consistent**. The project would be required to recycle and compost 75 percent of waste per AB 341. As such, the project would be consistent with the action.
Source: California Air Resources Board, *2022 Scoping Plan*, November 16, 2022.	

General Plan and Climate Action Plan Consistency

The City adopted both the General Plan and CAP on December 5, 2017. The CAP has been prepared concurrently with the updated General Plan, reflecting the City's most current land use and transportation strategy, and GHG implications of various General Plan's goals and principles. The CAP is designed to provide discrete actions to operationalize the General Plan policies that help with GHG reduction. As demonstrated in Table 10, *Consistency with General Plan and Climate Action Plan*, the project is consistent with the goal(s) related to GHG emissions reduction in the General Plan and Climate Action Plan. Additionally, the project would not exceed the Year 2030 emissions target of 6.0 per capita per year, refer to Table 7.

Table 10
Consistency with General Plan and Climate Action Plan

Goal/principle	Project Consistency
General Plan Sustainable Community Element	
Goal: Serve as an environmental steward; ensure that residents enjoy clean air and water; make efficient use of energy, water, and land resources; and grow in a manner in which increased population does not negatively impact resources. • 8-P.8: Promote sustainability by reducing the community's greenhouse gas (GHG) emissions and festering green development patterns-including buildings, sites, and landscapes. • 8-P.9: Undertake initiatives to enhance sustainability by reducing the community's GHG emissions.	**Consistent.** The proposed project would involve a mixture of multi-family, townhomes, and single-family residential development on an undeveloped land. The proposed project would comply with the 2022 Title 24 Building Energy Efficiency Standards. The project would promote alternative mode of transportation by providing electric charging spaces and bike storage spaces. As such, the project would ensure that the increased population associated with the proposed project would not negatively impact resources. The project would be consistent with the goal.
Climate Action Plan	
The climate action plan aims to reduce GHG emissions by reducing VMT through the following categories: bikeway system improvements, pedestrian improvements and increased connectivity, traffic calming, parking facilities and policies, transportation improvement.	**Consistent.** The project site is located in an urbanized area and within walking and biking distance of existing residential and commercial developments. Additionally, the proposed project is located within a half mile of OmniTrans Route 15 transit stop. The project would also be complied with Title 24 and CalGreen Code, which would be required to be electric vehicle ready. As such, the project would be consistent with CAP reduction measures.
Sources: 1. City of Redlands, *City of Redlands General Plan*, *Chapter 8, Sustainable Community*, December 5, 2017. 2. City of Redlands, *City of Redlands Climate Action Plan*, adopted December 5, 2017.	

Conclusion

In summary, the consistency analyses provided above demonstrate that the proposed project complies with the plans, policies, regulations, and strategies outlined in the City's General Plan (and CAP), SCAG's 2020-2045 RTP/SCS, and CARB's 2022 Scoping Plan. Therefore, the project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing emissions of GHGs. Impacts would be less than significant in this regard.

Mitigation Measures: No mitigation is required.

ENERGY

ENERGY CONSERVATION

In 1975, largely in response to the oil crisis of the 1970s, the California State Legislature adopted Assembly Bill 1575 (AB 1575), which created the California Energy Commission (CEC). The statutory mission of the CEC is to forecast future energy needs, license thermal power plants of 50 megawatts or larger, develop energy technologies and renewable energy resources, plan for and direct State responses to energy emergencies, and—perhaps most importantly—promote energy efficiency through the adoption and enforcement of appliance and building energy efficiency standards. AB 1575 also amended Public Resources Code Section 21100(b)(3) to require Environmental Impact Reports (EIRs) to consider the wasteful, inefficient, and unnecessary consumption of energy caused by a project. Thereafter, the California Natural Resources Agency created Appendix F, *Energy Conservation*, in the State's *California Environmental Quality Act Guidelines* (CEQA Guidelines). CEQA Guidelines Appendix F is an advisory document that assists EIR preparers in determining whether a project will result in the inefficient, wasteful, and unnecessary consumption of energy.

In December 2018, the California Natural Resources Agency finalized updates to the CEQA Guidelines. New CEQA Guidelines Section 15126.2(b) treats "wasteful, inefficient, or unnecessary" energy consumption as a significant environmental impact. As a result, energy thresholds have been incorporated into Appendix G, *Environmental Checklist Form*, of the CEQA Guidelines. This technical memorandum has been prepared to assess the project's energy impacts in accordance with Appendix G of the CEQA Guidelines.

EXISTING SETTING

Electricity/Natural Gas Services

Southern California Edison (SCE) provides electrical services to the City. Over the past 15 years, electricity generation in California has undergone a transition. Historically, California has relied heavily on oil- and gas-fired plants to generate electricity. Spurred by regulatory measures and tax incentives, California's electrical system has become more reliant on renewable energy sources, including cogeneration, wind energy, solar energy, geothermal energy, biomass conversion, transformation plants, and small hydroelectric plants. Unlike petroleum production, electricity generation is usually not tied to the location of the fuel source and can be delivered great distances via the electrical grid. The generating capacity of a unit of electricity is expressed in megawatts (MW). Net generation refers to the gross amount of energy produced by a unit, minus the amount of energy the unit consumes. Generation is typically measured in kilowatt-hours (kWh), megawatt-hours (MWh), or gigawatt-hours (GWh).

The Gas Company of Southern California (SoCalGas) provides natural gas services to the City. Natural gas is a hydrocarbon fuel found in reservoirs beneath the Earth's surface and is composed primarily of methane (CH_4). It is used for space and water heating, process heating and electricity generation, and as transportation fuel. Use of natural gas to generate electricity is expected to increase in coming years as it is a relatively clean alternative to other fossil fuels like oil and coal. In California and throughout the western United States, many new electrical generation plants fired by natural gas are being brought online. Thus, there is great interest in importing liquefied natural gas from other parts of the world. Nearly 45 percent of

natural gas burned in California is used for electricity generation.[21] While the supply of natural gas in the United States and production has increased greatly, California produces little and imports 90 percent of its natural gas.[22]

Electricity and natural gas services are available to locations where land uses could be developed. The City's ongoing development review process includes an opportunity for publicly- and privately-owned utility providers, including SCE and SoCalGas, to review and comment on all development proposals. The input facilitates a detailed review of all projects by service purveyors to assess the potential demands for utility services on a project-by-project basis. The ability of utility providers to provide services concurrently for each project is evaluated during the development review process. Utility providers are bound by contract to update energy systems to meet any additional demand.

Energy Usage

Energy usage is typically quantified using the British Thermal Unit (BTU). Total energy usage in California was 6,922.8 trillion BTUs in 2020 (the most recent year for which this specific data is available), which equates to an average of 175 million BTUs per capita.[23],[24] Of California's total energy usage, the breakdown by sector is 34.0 percent transportation, 24.6 percent industrial, 19.6 percent commercial, and 21.8 percent residential.[25] Electricity and natural gas in California are generally consumed by stationary users such as residences, commercial uses, and industrial facilities, whereas petroleum consumption is generally accounted for by transportation-related energy use. In 2022, taxable gasoline sales (including aviation gasoline) in California accounted for 3,319,395,152 gallons of gasoline.[26] The electricity consumption attributable to San Bernardino County (the County) from 2011 to 2021 is shown in Table 11, *Electricity Consumption in San Bernardino County 2011-2021*. As indicated in Table 11, electricity consumption in the County steadily increased from 2011 to 2020.

[21] California Energy Commission, *Supply and Demand of Natural Gas in California*, https://www.energy.ca.gov/data-reports/energy-almanac/californias-natural-gas-market/supply-and-demand-natural-gas-california, accessed June 21, 2022.

[22] Ibid.

[23] U.S. Energy Information Administration, *Table F33: Total Energy Consumption, Price, and Expenditure Estimates, 2020,* https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_te.html&sid=CA, accessed January 25, 2023.

[24] U.S. Energy Information Administration, *California, Profile Data, Consumption & Expenditures*, https://www.eia.gov/state/data.php?sid=CA#ConsumptionExpenditures, accessed January 25, 2023.

[25] Ibid.

[26] California Department of Tax and Fee Administration, *Net Taxable Gasoline Gallons (Including Aviation Gasoline)*, https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm, accessed June 21, 2022.

Table 11
Electricity Consumption in San Bernardino County 2011-2021

Year	Electricity Consumption (in millions of kilowatt hours)
2011	13,730
2012	14,348
2013	14,374
2014	14,731
2015	14,731
2016	14,946
2017	15,282
2018	15,376
2019	15,316
2020	15,969
2021	16,181

Source: California Energy Commission, *Electricity Consumption by County*, http://www.ecdms.energy.ca.gov/, accessed January 25, 2023.

The natural gas consumption attributable to the County from 2011 to 2021 is shown in Table 12, *Natural Gas Consumption in San Bernardino County 2011-2021*. Natural gas consumption in the County dropped in 2014 and 2015 but has steadily increased since then.

Table 12
Natural Gas Consumption in San Bernardino County 2011-2021

Year	Natural Gas Consumption (in millions of therms)
2011	503.91
2012	485.68
2013	502.66
2014	452.66
2015	469.63
2016	494.45
2017	493.07
2018	500.06
2019	547.27
2020	527.24
2021	561.36

Source: California Energy Commission, *Natural Gas Consumption by County*, http://www.ecdms.energy.ca.gov/, accessed January 25, 2023.

Automotive fuel consumption and off-road equipment diesel fuel consumption in the County from 2011 to 2022 with the projection of 2023 is shown in Table 3, *Fuel Consumption in San Bernardino County 2011-2023*. As shown in Table 13, on-road automotive fuel consumption in the County has risen from 2011 to 2016 and has steadily dropped since 2020. Off-road equipment diesel fuel consumption steadily increased from 2011 to 2023.

Table 13
Fuel Consumption in San Bernardino County 2011-2023

Year	On-Road Automotive Fuel Consumption (gallons)	Off-Road Equipment Diesel Fuel Consumption (gallons)
2011	1,057,044,789	10,763,874
2012	1,050,492,156	11,860,712
2013	1,062,365,695	13,010,143
2014	1,077,034,916	14,203,369
2015	1,109,414,962	15,455,329
2016	1,150,355,916	16,755,109
2017	1,171,380,439	18,112,459
2018	1,168,337,856	19,519,616
2019	1,171,853,887	20,984,704
2020	1,045,730,714	22,503,532
2021	1,160,066,096	22,935,594
2022	1,162,510,166	23,349,753
2023 (Projected)	1,158,084,711	23,737,170

Source: California Air Resources Board, *EMFAC2021, https://arb.ca.gov/emfac/*, accessed January 25, 2023.

REGULATORY SETTING

State

Senate Bill 100. Senate Bill (SB) 100 (Chapter 312, Statutes of 2018) requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours (kWh) of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024; 52 percent by December 31, 2027; 60 percent by December 31, 2030; and 100 percent by December 31, 2045. The bill requires the California Public Utilities Commission (CPUC), CEC, State board, and all other State agencies to incorporate that policy into all relevant planning. In addition, SB 100 requires the CPUC, CEC, and State board to utilize programs authorized under existing statutes to achieve that policy and, as part of a public process, issue a joint report to the Legislature by January 1, 2021, and every four years thereafter, that includes specified information relating to the implementation of the policy.

California Building Energy Efficiency Standards (Title 24). The 2022 Title 24 became effective on January 1, 2023. In general, Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2022 Title 24 standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expand solar photovoltaic and battery storage standards, strengthen ventilation standards, and more. Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Title 24 standards.

California Green Building Standards. California Green Building Standards (CALGreen) is the first-in-the-nation mandatory green buildings standards code. The California Building Standards Commission developed the green building standards in an effort to meet the goals of California's landmark initiative Assembly Bill (AB) 32, which established a comprehensive program of cost-effective reductions of greenhouse gases (GHGs) to 1990 levels by 2020. CALGreen was developed to (1) reduce GHGs from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the environmental directives of the administration. The 2022 CALGreen standards went into effect on January 1, 2023. CALGreen requires that new buildings employ water efficiency and conservation, increase building system efficiencies (e.g., lighting, heating/ventilation and air conditioning [HVAC], and plumbing fixtures), divert construction waste from landfills, and incorporate electric vehicles charging infrastructure. There is growing recognition among developers and retailers that sustainable construction is not prohibitively expensive, and that there is a significant cost-savings potential in green building practices and materials.[27]

California Public Utilities Commission Energy Efficiency Strategic Plan. The CPUC prepared an Energy Efficiency Strategic Plan (Strategic Plan) in September 2008 with the goal of promoting energy efficiency and a reduction in GHG emissions. In January 2011, a lighting chapter was adopted and added to the Strategic Plan. The Strategic Plan is California's single roadmap to achieving maximum energy savings in the State between 2009 and 2020, and beyond 2020. The Strategic Plan contains the practical strategies and actions to attain significant statewide energy savings as a result of a year-long collaboration by energy experts, utilities, businesses, consumer groups, and governmental organizations in California, throughout the West, nationally and internationally. The plan includes the following four "big bold" strategies:

1. All new residential construction in California will be zero net energy by 2020.

2. All new commercial construction in California will be zero net energy by 2030.

3. Heating, ventilation and air condition (HVAC) will be transformed to ensure that its energy performance is optimal for California's climate.

4. All eligible low-income customers will be given the opportunity to participate in the low-income energy efficiency program by 2020.

California Energy Commission Integrated Energy Policy Report. In 2002, the California State legislature adopted SB 1389, which requires the CEC to develop an Integrated Energy Policy Report (IEPR) every two years. SB 1389 requires the CEC to conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices, and use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the State's economy, and protect public health and safety.

The CEC adopted the *Final 2021 Integrated Energy Policy Report* (2021 IEPR) Volume I, Volume II, and Volume IV on February 1, 2022.[28] The 2021 IEPR provides information and policy recommendations on advancing a clean, reliable, and affordable energy system for all Californian. Volume I of the 2021 IEPR

[27] U.S. Green Building Council, *Green Building Costs and Savings*, https://www.usgbc.org/articles/green-building-costs-and-savings, accessed June 22, 2022.

[28] California Energy Commissions, *Final 2021 Integrated Energy Policy Report*, February 2022.

addresses actions needed to reduce the greenhouse gas emissions related to the buildings in which California live and work, with an emphasis on energy efficiency; Volume II examines actions needed to increase the reliability and resiliency of California's energy system; and Volume IV reports on California's energy demand outlook, including a forecast to 2035 and long-term energy demand scenarios of 2050. The 2021 IEPR builds on the goals and work in response to AB 758 (Energy: energy audit), SB 350 (Clean Energy and Pollution Reduction Act), AB 3232 (Zero-emissions buildings and sources of heat energy), and the 2019 IEPR to further a comprehensive approach toward decarbonizing buildings in a cost-effective and equitable manner. For the 2021 IEPR, the CEC extends the forecast timeframe to 15 years to coincide with several State goals that are planned for 2035 and improves methodologies to better quantify and predict the likelihood, severity, and duration of future extreme heat events.

Federal Energy Policy and Conservation Act of 1975. This Act (a) directs the Commission and the Justice Department to participate in developing, implementing, monitoring, and reporting on voluntary agreements and plans established by oil companies to deal with emergency international oil shortages and provides them a role in any Department of Energy (DOE) advisory committees on international allocation of oil products, under a limited antitrust exemption established by the Act; and (b) requires the Commission to issue regulations providing that certain household appliances must bear labels showing the products' "energy efficiency ratings". The Act also added FTC-related provisions to the Motor Vehicle Information and Cost Savings Act regarding fuel economy and recycled oil. Pursuant to the Federal Energy Policy and Conservation Act of 1975, the National Highway Traffic and Safety Administration (NTSA) is responsible for establishing additional vehicle standards and for revising existing standards. Compliance with Federal fuel economy standards is not determined for each individual vehicle model. Rather, compliance is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States.

Local

City of Redlands General Plan 2035

The City's current General Plan (the *City of Redlands General Plan 2035* [General Plan]) is a policy document, or "blueprint" for future development, adopted by the City Council to guide future growth in Redlands. The award-winning General Plan is organized around Themes (or chapters), which include policies and actions to guide future development. The seven Themes in the General Plan include: Distinctive City, Prosperous Economy, Livable Community, Connected City, Vital Environment, Healthy Community, and Sustainable Community. The State-mandated elements of Land Use, Circulation, Open Space, Conservation, Health & Safety, Noise, and Housing are all integrated within the Themes noted above. For each topic under a theme, the General Plan establishes policies that consist of principles and actions that form the supporting policies for the goal. Principles are the fundamental tenets that support each theme's goal, and are statements of broad direction, philosophy, or standards to be achieved. Actions are statements that support the implementation of the principles. The General Plan primary discusses energy within the Sustainable Community Theme. The following goal, policies, principals, and actions are applicable to the proposed project:

Sustainable Community

Goal: Serve as an environmental steward; ensure that residents enjoy clean air and water; make efficient use of energy, water, and land resources; and grow in a manner in which increased population does not negatively impact resources.

Energy Efficiency and Conservation Principles

8-P.1 Promote energy efficiency and conservation technologies and practices that reduce the use and dependency of nonrenewable resources of energy by both City government and the community.

Energy Efficiency and Conservation Actions

8-A.2 Support San Bernardino County and San Bernardino Associated Governments (SANBAG) in implementation of their energy-related policies.

8-A.8 Implement and enforce California Code of Regulations Title 24 building standards (parts 6 and 11) to improve energy efficiency in new or substantially remodeled construction. Consider implementing incentives for builders that exceed the standards included in Title 24 and recognize their achievements over the minimum standards.

8-A.9 Encourage the use of construction, roofing materials, and paving surfaces with solar reflectance and thermal emittance values per the California Green Building Code (Title 24, Part 11 of the California Code of Regulations) to minimize heat island effects.

8-A.10 Integrate trees and shade into the built environment, to mitigate issues such as stormwater runoff and the urban heat island effect.

8-A.11 Further City efforts to be a model of energy conservation stewardship by:

- Continuing participation in SCE/SCG's Community Partnership program; Moving City electric load off-peak where practical;
- Partnering directly with large consumers of energy and encouraging and promoting their energy efficiency activities;
- Establishing energy efficiency and conservation baselines; and
- Reporting routinely on the progress of goals.

8-A.16 Complete a comprehensive review of City codes and standards for applicability for energy and water efficiency/conservation measures and make changes to modify them accordingly.

8-A.17 Set goals consistent with the State's Long-Term Energy Efficiency Strategic Plan. Design and implement programs and incentives to meet these goals in both private and public sector construction:

- All new residential construction in California will be zero net energy by 2020.
- All new commercial construction in California will be zero net energy by 2030.

- The heating, ventilation, and air conditioning (HVAC) industry will be improved to ensure optimal equipment performance; and all eligible low-income homes will be energy efficient by 2020.

8-A.20 Support energy resiliency through a diversified system of energy sources including zero and near-zero emission technologies.

Green Building and Landscapes Actions

8-A.39 Continue implementation and enforcement of the California Building and Energy codes to promote energy efficient building design and construction.

8-A.40 Promote the Leadership in Energy and Environmental Design (LEED) certification program for the design, operation, and construction of high-performance green buildings.

8-A.41 Promote energy conservation and retrofitting of existing buildings through:

- Encouraging point-of-sale residential energy and water efficiency audits. Provide information on upgrading requirements and/or incentives if necessary;
- Providing financial incentives and low-cost financing products and programs that encourage investment in energy efficiency and renewable energy within existing residential buildings; and
- Educating residents about the availability of free home energy audit programs and encouraging the implementation of audit findings.

8-A.43 Decrease the need for artificial cooling, heating, and lighting, and promote outdoor lifestyles in Redlands' moderate climate by:

- Updating the Zoning Ordinance to provide for adequate private and common open spaces as part of multi-family developments; and
- Encouraging residential and office buildings to have windows that open to the outside in all habitable rooms and maximize the use of daylight.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) THRESHOLDS

In accordance with the CEQA Guidelines, project impacts are evaluated to determine whether significant adverse environmental impacts would occur. This analysis will focus on the project's potential impacts and provide mitigation measures, if required, to reduce or avoid any potentially significant impacts that are identified. According to Appendix G of the CEQA Guidelines, the proposed project would have a significant impact related to energy, if it would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation (refer to Impact Statement EN-1); and/or

- Conflict with or obstruct a State or local plan for renewable energy or energy efficiency (refer to Impact Statement EN-2).

Appendix F of the CEQA Guidelines is an advisory document that assists environmental document preparers in determining whether a project will result in the inefficient, wasteful, and unnecessary consumption of energy. The analysis in Impact Statement EN-1 relies upon Appendix F of the CEQA Guidelines, which includes the following criteria to determine whether this threshold of significance is met:

- **Criterion 1**: The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- **Criterion 2**: The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- **Criterion 3**: The effects of the project on peak and base period demands for electricity and other forms of energy.
- **Criterion 4**: The degree to which the project complies with existing energy standards.
- **Criterion 5**: The effects of the project on energy resources.
- **Criterion 6**: The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Quantification of the project's energy usage is presented and addresses **Criterion 1**. The discussion on construction-related energy use focuses on **Criteria 2, 4,** and **5**. The discussion on operational energy use is divided into transportation energy demand and building energy demand. The transportation energy demand analysis discusses **Criteria 2, 4,** and **6**, and the building energy demand analysis discusses **Criteria 2, 3, 4,** and **5**.

IMPACT ANALYSIS

Impact EN-1 Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant Impact. This analysis focuses on three sources of energy that are relevant to the proposed project: electricity, natural gas, and transportation fuel for vehicle trips and off-road equipment associated with project construction and operations. The analysis of operational electricity is based on the California Emissions Estimator Model version 2022.1 (CalEEMod) modeling results for the project. The project's estimated electricity consumption is based primarily on CalEEMod's default settings for the County, and consumption factors provided by SCE and the SoCalGas, who are the electricity and natural gas providers for the City and the project site. The results of the CalEEMod and energy consumption modeling are included in Appendix A. The amount of operational fuel consumption was estimated using the California Air Resources Board (CARB) Emissions Factor 2021 (EMFAC2021) computer program which provides projections for typical daily fuel (i.e., diesel and gasoline) usage in the County, and the project's annual vehicle miles traveled (VMT) outputs from CalEEMod. The estimated construction fuel consumption is based on the project's construction equipment list timing/phasing, and hours of duration for construction equipment, as well as vendor, hauling, and construction worker trips.

The project's estimated energy consumption is summarized in Table 14, *Project and Countywide Energy Consumption*. As shown in Table 14, the project's energy usage would constitute an approximate 0.0184 percent increase over the County's typical annual electricity consumption and an approximate 0.0123 percent increase over the County's typical annual natural gas consumption. The project's off-road construction equipment diesel fuel consumption, on-road construction fuel consumption, and operational vehicle fuel consumption would increase Riverside County's consumption by 0.4543 percent, 0.0177 percent, and 0.0927 percent, respectively (**Criterion 1**).

Table 14
Project and Countywide Energy Consumption

Energy Type	Project Annual Energy Consumption[1]	San Bernardino County Annual Energy Consumption[2]	Percentage Increase Countywide[2]
Electricity Consumption	2,970 MWh	16,180,811 MWh	0.0184%
Natural Gas Consumption	68,976 therms	561,360,617 therms	0.0123%
Fuel Consumption			
• Construction Off-road Fuel Consumption[3]	111,562 gallons	24,554,746 gallons	0.4543%
• Construction On-road Fuel Consumption[3]	202,819 gallons	1,147,766,168 gallons	0.0177%
• Operational Automotive Fuel Consumption[3]	1,033,060 gallons	1,113,988,859 gallons	0.0927%

Notes:
1. As modeled in CalEEMod version 2022.1.
2. The project increases in electricity and natural gas consumption are compared to the total consumption in San Bernardino County in 2021. The project increases in automotive fuel consumption are compared with the projected Countywide off-road fuel consumption in 2024 (start of construction), on-road fuel consumption in 2024 (start of construction), and on-road fuel consumption in 2026 (operational year). Countywide fuel consumption is projected from the California Air Resources Board EMFAC2021 model.
   San Bernardino County electricity consumption data source: California Energy Commission, *Electricity Consumption by County*, http://www.ecdms. energy.ca.gov/elecbycounty.aspx, accessed January 25, 2023.
   San Bernardino County natural gas consumption data source: California Energy Commission, *Gas Consumption by County*, http://www.ecdms.energy. ca.gov/gasbycounty.aspx, accessed January 25, 2023.
3. Project fuel consumption calculated based on CalEEMod results. Countywide fuel consumption is projected from the California Air Resources Board EMFAC2021 model.

Refer to Appendix A, *Air Quality/Greenhouse Gas Emissions/Energy Data*, for assumptions used in this analysis and detailed model input/output data.

Construction-Related Energy Consumption

Project construction would consume energy in two general forms: (1) the fuel energy consumed by construction vehicles and equipment; and (2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass. Fossil fuels used for construction vehicles and other energy-consuming equipment would be used during grading, paving, building construction, and architectural coatings. Fuel energy consumed during construction would be temporary and would not represent a significant demand on energy resources. In addition, some incidental energy conservation would occur during construction through compliance with State requirements that

heavy-duty diesel equipment not in use for more than five minutes be turned off. Project construction equipment would also be required to comply with the latest U.S. Environmental Protection Agency (EPA) and CARB engine emissions standards. These emissions standards require highly efficient combustion systems that maximize fuel efficiency and reduce unnecessary fuel consumption. Due to increasing transportation costs and fuel prices, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction (**Criterion 4**).

The project-related incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes and manufactured or processed materials (e.g., lumber and gas) would not substantially increase demand for energy compared to overall local and regional demand for construction materials. As indicated in Table 14, the project's off-road fuel consumption and on-road fuel consumption from construction would be approximately 111,562 gallons and 202,819 gallons, respectively. The project's off-road fuel consumption and on-road fuel consumption from construction would increase off-road construction equipment diesel fuel use and on-road vehicle fuel consumption in the County by approximately 0.4543 percent and 0.0177 percent, respectively. As such, construction would not have a significant effect on the local and regional energy supplies (**Criterion 2**). It is noted that construction fuel use is temporary and would cease upon completion of construction activities. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or State (**Criterion 5**). Therefore, construction fuel consumption would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature. As such, the impact would be less than significant.

Operational Energy Consumption

Transportation Energy Demand

Table 14 provides an estimate of the daily fuel consumed by vehicles traveling to and from the project site. Based on the on the Traffic Study, the proposed project would result in approximately 3,728 average daily trips (ADT) with 228 A.M. peak hour trips and 288 P.M. peak hour trips. As indicated in Table 14, project operational daily trips are estimated to consume approximately 1,033,060 gallons of fuel per year, which would increase the County's automotive fuel consumption by 0.0927 percent. The project does not propose any unusual features that would result in excessive long-term operational fuel consumption (**Criterion 2**).

The key drivers of transportation-related fuel consumption are job locations/commuting distance and many personal choices on when and where to drive for various purposes. Those factors are outside of the scope of the design of the proposed project. However, the project would provide electric vehicle charging stations and bicycle parking in compliance with CALGreen Code, and the closest bus stop is within located approximately 400 feet west of the project site along West Lugonia Avenue. Inclusion of electrical vehicle charging stations would encourage and support the use of electric vehicles, and the availability of other alternative transportation methods would reduce the petroleum fuel consumption associated with operation of the project (**Criterion 4** and **Criterion 6**).

Therefore, fuel consumption associated with project-related vehicle trips would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region. The impact would be less than significant.

The CEC developed 2020 to 2035 forecasts for energy consumption and peak demand in support of the 2021 IEPR for each of the major electricity and natural gas planning areas and the State based on the economic and demographic growth projections.[29] CEC forecasts that the statewide annual average growth rates of energy demand between 2021 and 2030 would be 1.3 percent to 2.3 percent for electricity and less than 0.1 percent to 0.8 percent increase for natural gas.[30] As shown in Table 14, operational energy consumption of the project would represent less than 0.02 percent increase in electricity and natural gas consumption over the current Countywide usage, which would be significantly below CEC's forecasts and the current Countywide usage. Therefore, the project would be consistent with the CEC's energy consumption forecasts and would not require additional energy capacity or supplies (**Criterion 2**). Additionally, the project would consume energy during the same time periods as other mixed-use projects. As a result, the project would not result in unique or more intensive peak or base period electricity demand (**Criterion 3**).

The proposed project would be required to comply with the most current Title 24 Building Energy Efficiency Standards, which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the Title 24 standards significantly reduces energy usage. The Title 24 Building Energy Efficiency Standards are updated every three years and become more stringent between each update. The project would also incorporate sustainable building design features in accordance with Title 24 and CALGreen Code standards, such as reserving area on the roof for future solar panels and installing energy efficient appliances. The 2022 Title 24 standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expand solar photovoltaic and battery storage standards, strengthen ventilation standards, and more (**Criterion 4**).

Furthermore, the electricity provider, SCE, is subject to California's Renewables Portfolio Standard (RPS). The RPS requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020 and to 60 percent of total procurement by 2030. Renewable energy is generally defined as energy that comes from resources which are naturally replenished within a human timescale such as sunlight, wind, tides, waves, and geothermal heat. The increase in reliance of such energy resources further ensures that new development projects will not result in the waste of the finite energy resources (**Criterion 5**).

Therefore, the project would not cause wasteful, inefficient, and unnecessary consumption of building energy during project operation, or preempt future energy development or future energy conservation. The impact would be less than significant.

Mitigation Measures: No mitigation is required.

Impact EN-2 Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. The City does not have an adopted renewable energy or energy efficiency

[29] California Energy Commission, *Final 2021 Integrated Energy Policy Report Volume IV California Energy Demand Forecast*, February 2022. Annual average growth rates of electricity demand and natural gas per capita demand are shown in Figure 10 and Figure 14, respectively.

[30] Ibid.

plan. State and regional plans for renewable energy and energy efficiency include the California Energy Commission's Integrated Energy Policy Report (IEPR), California Public Utilities Commission's Energy Efficiency Strategic Plan (CPUC Strategic Plan), Title 24 standards, and CALGreen standards. The project would be required to comply with Title 24 and CALGreen standards and incorporates all applicable energy efficiency measures. Energy efficiency measures typical for residential projects include installation of energy efficient windows, insulation, lighting, ventilation systems, and water efficient fixtures, conservation of roof areas for future installation of solar panels, as well as provision of electric vehicles charging infrastructure, among others. Compliance with Title 24 and CALGreen standards would also be consistent with the CPUC Strategic Plan strategies and the IEPR building energy efficiency recommendations, which would ensure project conformance with the State's energy reduction goals. It should be noted that the project is consistent with the *City of Redlands Climate Action Plan*, which includes City-specify policies related to energy; refer to Impact GHG-2. As such, the proposed project would result in less than significant impacts associated with renewable energy or energy efficiency plans.

Mitigation Measures: No mitigation is required.

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Appendix A
Air Quality/Greenhouse Gas Emissions/Energy Data