Paradise Valley Gas Station Project
PDS2019-ZAP-19-003, PDS2020-ER-20-18-001

Air Quality Report

prepared for
County of San Diego

Project Proponent
BPI1E&P, LLC., Joseph Brikho, Owner
5494 Mission Center Road
San Diego, California 92108

prepared by
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Carlsbad, California 92008

October 2019 (Original Submittal)
May 2020 (Revised for Resubmittal)
May 2021 (Revised for Resubmittal)
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March 2022 (Revised for Resubmittal)

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Executive Summary

This air quality impact study has been completed to determine air quality impacts associated with the proposed development of the Paradise Valley Gas Station project. The project site encompasses 0.5 gross acres (21,548 square feet) and is bordered by Paradise Valley Road to the west, Elkelton Place to the south, and State Route 125 (SR-125) to the east. The project site has a General Plan land use designation of Limited Industrial. The southern portion of the project site (fronting Elkelton Place, approximately 5,900 square feet) has a zoning designation of M52 (Limited Impact Industrial Use), which permits commercial gasoline sales and automotive and equipment cleaning uses. The northern portion of the project site (fronting Paradise Valley Road, approximately 15,600 square feet) has a zoning designation of M54 (General Impact Industrial Use), which also permits commercial gasoline sales and automotive and equipment cleaning uses with no limitations. Both the M52 and M54 use regulations allow convenience retail operations under a minor use permit, which the project would require for the proposed convenience store. Therefore, no amendments to the County's General Plan, the Spring Valley Community Plan, or County zoning would be required to accommodate the project.

Project construction is anticipated to begin in June 2021, and construction phases include site preparation and grading, building construction, paving, and architectural coating. The project is anticipated to open in early 2022.

Fugitive dust emissions would be expected during project construction due to grading activities, use of heavy equipment, and from construction workers commuting to and from the site. However, construction emissions would not exceed San Diego County screening level thresholds. Therefore, no additional mitigation is required during project construction.

The project would generate air pollutant emissions during operation of the proposed gas station, convenience store, and carwash tunnel. A majority of the operational emissions generated by the project would be due to stationary source emissions from the fuel storage and dispensing and mobile emissions from vehicle trips to and from the project site. However, operational emissions would not exceed San Diego County screening level thresholds. Therefore, no additional mitigation is required during project operations.

A screening-level carbon monoxide (CO) hotspot analysis was completed based on project-specific traffic impacts. Traffic generated during project operation would not cause intersections in the vicinity of the project site to operate at or below a level of service (LOS) E, and intersection peak-hour trips would be less than 3,000 trips. Therefore, a CO hotspot analysis is not required and project-generated trips would not result in, or substantially contribute to, CO concentrations that exceed the eight-hour ambient air quality standards along area roadways and intersections.

A screening-level health risk assessment was completed based on guidance provided in the California Air Pollution Control Officers Association (CAPCOA) *Gasoline Service Station Industrywide Risk Assessment* Guidelines (1997). Based on these guidelines, 1.2 million gallons of throughput at a distance of 40 meters (130 feet) from the gas station would result in a cancer risk of 2.42 per million. It should be noted that subsequent to the CAPCOA guidelines being released, the Office of Environmental Health Hazard Assessment (OEHHA) published new (2015) risk assessment guidelines to account for potential early-life exposures. The 2015 OEHHA methodology results in risk estimates approximately 1.5 to 3 times higher than what would have previously been estimated. As such, to account for the 2015 OEHHA methodology, the risk per million gallons of throughput can

conservatively be multiplied by 3, resulting in an estimated 7.3 risk per million, which is less than the threshold of 10 per million. Therefore, construction and operation of the proposed gas station would not expose residents in the vicinity to substantial pollutant concentrations.

Based on the vehicle fleet mix estimate provided in the California Emissions Estimator Model (CalEEMod) completed for the proposed project, mobile emissions during project operations would primarily be composed of passenger and light-duty vehicles (59.8%) and light trucks (18.1%) accessing the gas station and convenience store. The project would not attract a large number of trips from large or heavy-duty vehicles that could generate mobile diesel emissions due to the passenger vehicle-serving nature of the proposed use. Therefore, construction and operation of the proposed gas station and convenience store would not generate toxic air contaminants (TACs) that would adversely impact sensitive receptors in the vicinity of the project site.

The proposed project would not generate offensive odors that would impact sensitive receptors.

Finally, the project would comply with the Regional Air Quality Strategy (RAQS) and the State Implementation plan (SIP). Therefore, no additional measures beyond those required by San Diego Air Pollution Control District (SDAPCD) rules and permits are needed to reduce project air quality impacts.

1 Introduction

1.1 Purpose of the Report

This report details the analysis of potential air quality impacts of a proposed gas station and convenience store (project), located in the Spring Valley neighborhood of San Diego County, in the east corner of Paradise Valley Road and Elkelton Place. The project site contains one vacant parcel (APN 584-160-52-00), approximately 0.5 acre (21,548 square feet), bordered by Paradise Valley Road to the west, Elkelton Place to the south, and State Route 125 (SR-125) to the east.

This report has been prepared by Rincon Consultants, Inc. under contract to Joseph Brikho (owner) of BPI1EP, LLC. for use by San Diego County in support of environmental documentation being prepared for the project pursuant to the California Environmental Quality Act (CEQA). The purpose of this study is to analyze the project's air pollutant emissions and associated impacts. This analysis considers both temporary impacts that would result from project construction and potential long-term impacts associated with operation of the project.

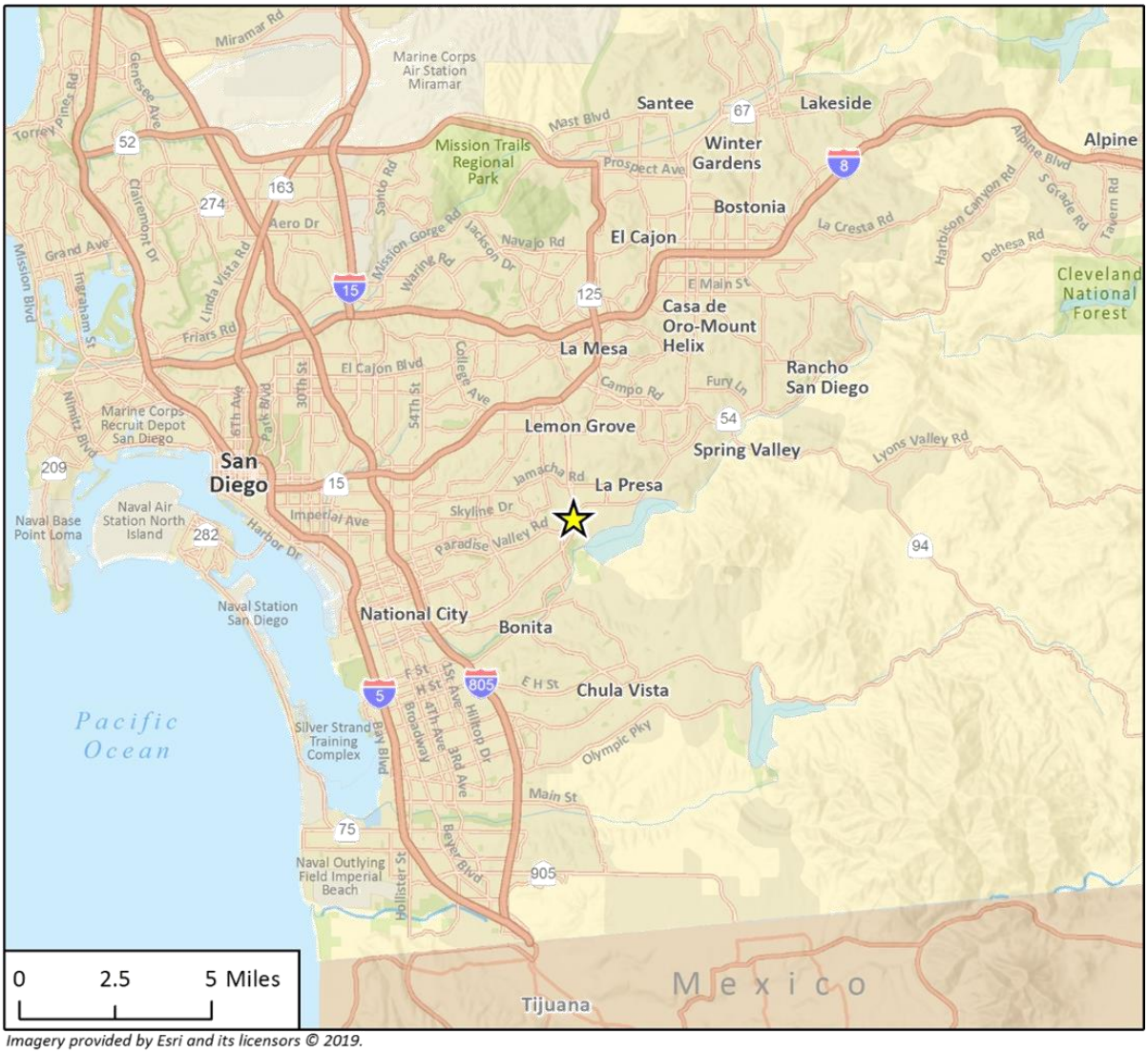
1.2 Project Location and Description

The project site encompasses 0.5 gross acres (21,548 square feet) and is bordered by Paradise Valley Road to the west, Elkelton Place to the south, and SR-125 to the east. The site is a tapered quadrangle that is approximately 220 feet wide fronting Paradise Valley Road, 130 feet wide fronting Elkelton Place, 285 feet wide along the eastern site boundary, and 18 feet wide along the northern site boundary. The southbound SR-125 on-ramp is located to the north of the project site and continues as an elevated ramp close to the eastern boundary of the project site (approximately 60 feet from the northeast corner of the site to 210 feet from the southeast corner of the site). The southbound SR-125 off-ramp is located approximately 90 feet to the east of the project site (from eastern site boundary to centerline) at ground level. The regional location of the site and existing site conditions are shown in Figure 1 and Figure 2, respectively.

The project entails development of a gasoline service station (four multi-product dispensers to serve up to eight vehicles simultaneously) with a 2,318 square-foot canopy, a 4,713 square-foot convenience store building, an 855 square-foot carwash tunnel, and 16 on site vehicle parking spaces. The proposed gas station and convenience store would operate 24 hours a day, seven days a week, with a total of ten employees. The eight pump stations would provide three grades of gasoline (regular, mid-range, and premium) and diesel. Annual estimated gasoline throughput for the proposed gas station is 1 to 1.2 million gallons (850,000 to 1,050,000 gallons of gasoline and 100,000 to 150,000 gallons of diesel). Figure 3 shows the proposed project site plan.

The site is accessible from a driveway located on Paradise Valley Road. The project site plan includes proposed vehicular circulation on site. The project would provide eight off-street parking spaces: six spaces would be standard parking spaces, one space would be designated as handicap parking, and one space would be designated van pool with the option of being converted to an electric vehicle charging space based on future needs. The gas station use would provide eight parking spaces by the eight pump stations under the canopy. The proposed gas station would include four underground storage tanks (USTs) for the three grades of gasoline and diesel fuel to be dispensed during project operation. The four USTs would contain the following capacities: 6,000 gallons for

Figure 1 Regional Location



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Project Location

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Figure 2 Project Location

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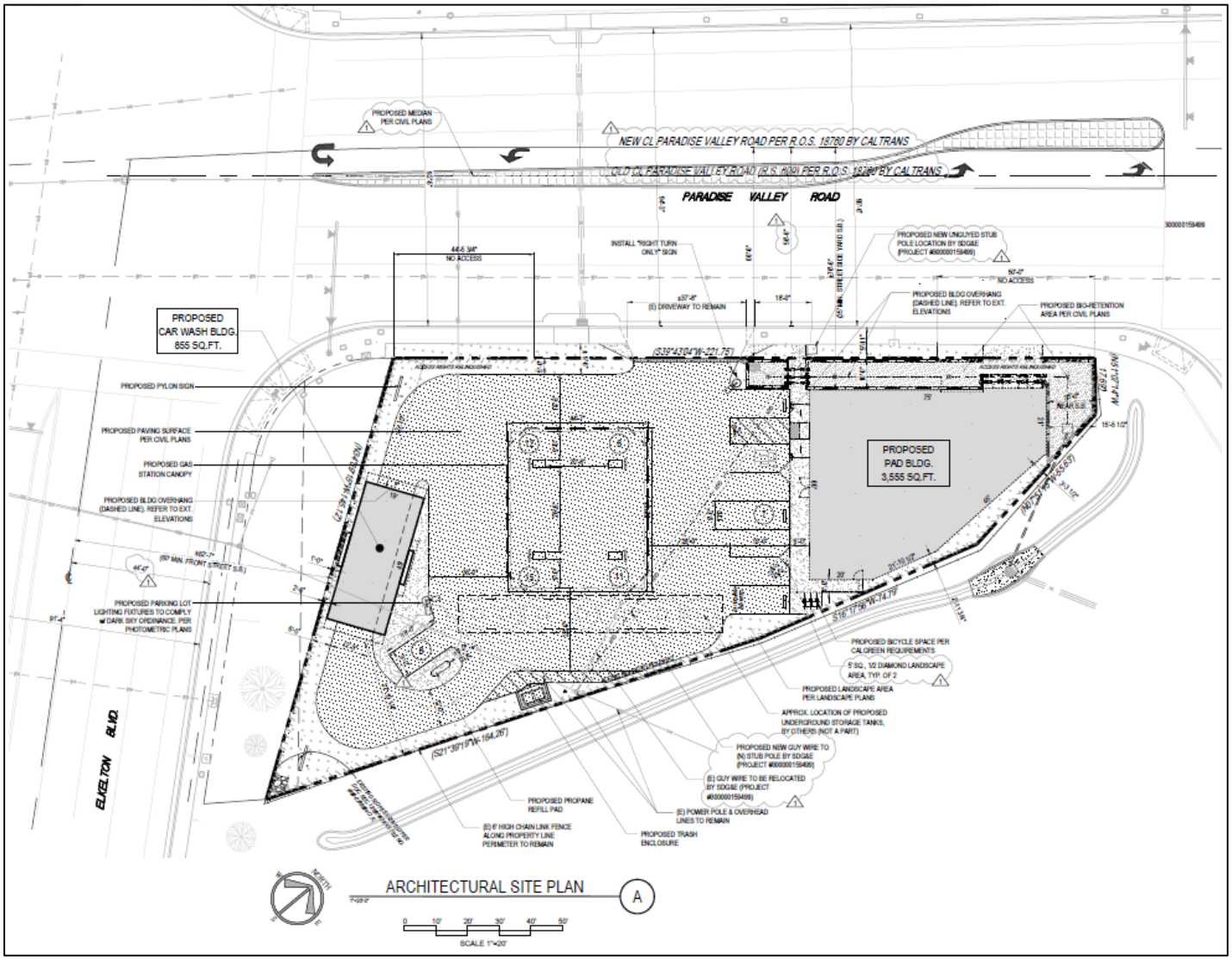
Fig 2 Project Location

Figure 3 Project Site Plan



Source: MPA Architects, Inc. 2020.

diesel; 8,000 gallons for premium grade gasoline; 12,000 gallons for E85 flex fuel; and 16,000 gallons for regular grade gasoline and be located underground between the four multi-product dispensers and the proposed trash enclosure (located along the east project site boundary). The project would include a Veeder-Root Carbon Canister Vapor Polisher (CCVP) system, which is an advanced system for managing vapor containment of USTs at gas stations to emissions below California Air Resources Board (CARB) standards (Veeder-Root 2019). The CCVP would be mounted to the vent risers to be located next to the proposed trash enclosure. A Stage II vapor recovery system (balance system) would be used with the CCVP to ensure efficient capture of vehicle tank vapors during actual vehicle fueling activities.

The project also includes an off-site improvement to install a concrete-filled traffic median with a 6-inch high curb located on Paradise Valley Road on the portion of Paradise Valley Road north of Elkelton Boulevard to the intersection of Paradise Valley Road and the SR-125 on-ramp. The conceptual design estimates the median would require approximately 1,500 square feet of stamped concrete fill and 700 square feet of 6-inch high curb bordering; the area of the conceptual median would be approximately 0.05 acres (2,200 square feet). Installation of the median would not require soil excavation work; it is anticipated that the proposed median would be installed by scouring the pavement along Paradise Valley Boulevard and placing the concrete in place (“grind and overlay”).

An additional site improvement includes raising the existing guy wire supporting the existing power pole to 30 feet above the ground, running the existing guy wire above the project site (up to 30 feet, aerial) to maintain wire tension, and connecting it to a new post located directly off-site in the undeveloped portion of the right-of-way that runs between the project site and existing sidewalk along Paradise Valley Road. The new post, proposed by SDG&E, would be located approximately 65 to 70 feet north from the center of the existing project site driveway. This improvement would ensure safe operations of proposed uses and vehicular circulation on the project site.

The proposed development would require site preparation and grading. An estimated 100 cubic yards (CY) of soil would be cut and recompacted on site. An additional estimated 550 CY of fill would be imported to the Project site. Project construction is estimated to take between six to seven months, starting in June 2021. Project opening is anticipated for early 2022.

2 Existing Conditions

2.1 Existing Setting

The project site is located in an urbanized area with residential development approximately 150 feet west of the project site, the SR-125 on- and off-ramps approximately located to the east, and an outdoor sand and soil lot located to the south. The project site is vacant and relatively flat, with lightly varied topography between 284 to 286 feet above sea level.

2.2 Climate and Meteorology

The project site is located in the San Diego Air Basin (SDAB), which is bordered by the Pacific Ocean to the west, the South Coast Air Basin (SCAB) to the north, the Salton Sea Air Basin to the east, and the U.S./Mexico border to the south. Regional wind patterns are dominated by onshore sea breezes during the day, and winds generally slow or reverse direction toward the sea at night. Temperature and precipitation can vary widely within the SDAB, where average annual precipitation ranges from approximately 10 inches in the coastal and inland areas to over 30 inches in the mountains. In general, milder annual temperatures are experienced in the maritime and coastal areas, whereas the interior and desert areas experience warmer summers and cooler winters. The majority of the unincorporated County is located in the interior and desert zones, approximately 25 miles inland from the coast to the County's eastern border. The project site is located approximately seven miles inland from the inner harbor of San Diego Bay.

High air pollution levels in coastal communities of San Diego can often occur when polluted air from the SCAB, particularly from Los Angeles, travels southwest over the ocean at night and is brought on shore into San Diego by the sea breeze during the day (SDAPCD 2015). Ozone (O_3) and its precursor emissions (reactive organic gases [ROG] and nitrogen oxides [NO_X]) are also transported to San Diego during relatively mild Santa Ana weather conditions, which tend to occur between October through March when high pressure builds over the Great Basin of the central Nevada region and hot and dry winds blow westward from the interior regions of the Sierra Nevada, San Gabriel, and San Bernardino mountains to the coastline (Fovell 2002). However, during strong Santa Ana weather conditions, pollutants are pushed away from San Diego far out to sea.

Air pollutant emission sources in the SDAB are typically grouped into two categories: stationary and mobile sources. Mobile source emissions can be attributed to vehicles and transportation-related activities. Stationary sources can be divided into two major subcategories: point and area sources. Point source emissions originate from manufacturing and industrial processes, while area emissions are generated from residential heaters, small engines, and other consumer products. Both major emissions categories are widely distributed within SDAB and may have a cumulative effect.

2.3 Regulatory Setting

The federal and state governments have established ambient air quality standards for the protection of public health. The United States Environmental Protection Agency (U.S. EPA) is the federal agency designated to administer air quality regulation, while the California Air Resources Board (CARB) is the state equivalent in the California Environmental Protection Agency (CalEPA). Air

Districts provide local management of air quality. CARB has established air quality standards and is responsible for the control of mobile emission sources, while the local Air Districts are responsible for enforcing standards and regulating stationary sources. CARB has established 14 air basins statewide, including the SDAB.

The U.S. EPA has set national ambient air quality standards (NAAQS) for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with a diameter of up to ten microns (PM_{10}) and up to 2.5 microns ($PM_{2.5}$), and lead (Pb). NAAQS are set at levels where air quality is deemed harmful, with an adequate margin of safety, to protect public health. In addition, California ambient air quality standards (CAAQS) have been established for these and other pollutants, some of which are more stringent than the federal standards. Table 1 lists the current federal and state standards for regulated pollutants.

The San Diego Air Pollution Control District (SDAPCD) is the designated air quality control agency for the SDAB. The SDAB currently meets the NAAQS for all criteria air pollutants except ozone and is classified an attainment/maintenance area for CO, and unclassifiable for PM_{10}. The SDAB is currently classified as a nonattainment area under the CAAQS for ozone, PM_{10}, and $PM_{2.5}$ (SDAPCD 2019). Characteristics of O_3, CO, NO_2, and suspended particulates are described in the subsequent sections.

Ozone

Ozone is a highly oxidative unstable gas, produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides NO_X and reactive organic gases ROG[1]. NO_X is formed during the combustion of fuels, while reactive organic gases are formed during combustion and evaporation of organic solvents (San Diego County 2007). Because O_3 requires sunlight to form, it mostly occurs in substantial concentrations between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to O_3 include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors (U.S. EPA 2018a).

Carbon Monoxide

CO is a local pollutant that is found in high concentrations only near fuel combustion equipment and other sources of CO. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic (San Diego County 2007). Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. CO's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulty in people with chronic diseases, reduced lung capacity, and impaired mental abilities (U.S. EPA 2016a).

[1] Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air quality perspective two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC). SDAPCD uses the term VOC to denote organic precursors. As such, the term VOC will be used throughout the study, a term used interchangeably with ROGs by SDAPCD.

Table 1 Federal and State Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is

attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[12] Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[13] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[14] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[15] In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: CARB, May 2016, Ambient Air Quality Standards

Nitrogen Dioxide

NO_2 is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces (San Diego County 2007). The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. Nitrogen dioxide is a reactive, oxidizing gas and an acute irritant capable of damaging cell linings in the respiratory tract. Exposure to high concentrations of NO_2 can aggravate respiratory diseases such as asthma and increase susceptibility to respiratory infections. Those with asthma, as well as children and the elderly, face greater risks of NO_2 health effects (U.S. EPA 2016b). NO_2 absorbs blue light and causes a reddish brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of ozone/smog and acid rain.

Suspended Particulates

Atmospheric particulate matter is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. These particles vary in shape, size, and chemical composition. The particulates that are of particular concern are PM_{10} (which measures no more than 10 microns in diameter) and $PM_{2.5}$, (a fine particulate measuring no more than 2.5 microns in diameter). The characteristics, sources, and potential health effects associated with the small particulates (PM_{10} and $PM_{2.5}$) and $PM_{2.5}$ can be different. Major man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and entrainment of road dust into the atmosphere (San Diego County 2007). Natural sources include windblown dust, wildfire smoke, and sea spray salt. The finer $PM_{2.5}$ particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage (U.S. EPA 2018b). These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Toxic Air Contaminants (TACs)

A toxic air contaminant (TAC) is defined by California law as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. TACs are primarily regulated through the Tanner Air Toxics Act (Assembly Bill ;[AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). AB 1807 sets forth a formal procedure for CARB to utilize when designating substances as TACs. This procedure includes pre-designation research, public participation, and scientific peer review. Pursuant to AB 2588, existing facilities that emit air pollutants above specified levels are required to (1) prepare a TAC emissions inventory plan and report; (2) prepare a risk assessment if TAC emissions are significant; (3) notify the public of significant risk levels; and (4) if health impacts are above specified levels, prepare and implement risk reduction measures.

2.3.1 SAFE Vehicle Rule

The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) published the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program" in September 2019 and issued the Final SAFE Rule (i.e., SAFE Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks) in April 2020. The SAFE Vehicle Rule relaxes federal GHG and Corporate Average

Fuel Economy (CAFE) vehicle standards and revokes California's authority to set its own GHG vehicle standards.

2.3.2 Air Quality Management Plan

The federal Clean Air Act Amendments (CAAA) mandates that states submit and implement a State Implementation Plan (SIP) for areas not meeting air quality standards. The SIP includes pollution control measures to demonstrate how the standards will be met through those measures. The SIP is established by incorporating measures established during the preparation of Air Quality Management Plans (AQMPs) and adopted rules and regulations by each local APCD and AQMD, which are submitted for approval to CARB and the U.S. EPA. The goal of an AQMP is to reduce pollutant concentrations below the National Ambient Air Quality Standards (NAAQS) through the implementation of air pollutant emission controls.

The San Diego Regional Air Quality Strategy (RAQS) was developed pursuant to California Clean Air Act (CCAA) requirements. The RAQS was initially adopted in 1991 and was updated in 1995, 1998, 2001, 2004, 2009, and most recently in December 2016 (SDAPCD 2016). The RAQS identifies feasible emission control measures to provide progress in San Diego County toward attaining the State ozone standard. The pollutants addressed in the RAQS are volatile organic compounds (VOCs) and NO_X, precursors to the photochemical formation of ozone (the primary component of smog). The RAQS was initially adopted by the SDAPCD Board on June 30, 1992, and amended on March 2, 1993, in response to CARB comments. At present, no attainment plan for PM_{10} or $PM_{2.5}$ is required by the state regulations. However, SDAPCD has adopted measures to reduce particulate matter in San Diego County. These measures range from regulation against open burning to incentive programs that introduce cleaner technology (SDAPCD 2005).

The RAQS relies on information from CARB and San Diego Association of Governments (SANDAG), including mobile and area source emissions, as well as information regarding projected growth in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and the County as part of the development of the individual General Plans. As such, projects that propose development consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the General Plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the General Plan and SANDAG's growth projections, the project might be in conflict with the RAQS and SIP and might have a potentially significant impact on air quality.

The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the SDAPCD to control emissions from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the SIP and thereby hinder attainment of the NAAQS for ozone.

2.3.3 San Diego County General Plan

The San Diego County General Plan (2011a) contains a set of goals, policies, and recommendations that represent a shared vision for the future of unincorporated County lands. It establishes a

framework for ensuring that changes to the built environment, whether public or private, aid in maintaining or improving specific communities while enhancing community qualities as a place for living, recreating, and working. The General Plan Conservation Element contains policies related to the County's sustainable land development goals. Policies specifically related to air quality are as follows:

- **COS-14.8: Minimize Air Pollution.** Minimize land use conflicts that expose people to significant amounts of air pollutants.
- **COS-14.9: Significant Producers of Air Pollutants.** Require projects that generate potentially significant levels of air pollutants and/or GHGs such as quarries, landfill operations, or large land development projects to incorporate renewable energy, and the best available control technologies and practices into the project design.
- **COS-14.10: Low-Emission Construction Vehicles and Equipment.** Require County contractors and encourage other developers to use low-emission construction vehicles and equipment to improve air quality and reduce GHG emissions.
- **COS-15.6: Design and Construction Methods.** Require development design and construction methods to minimize impacts to air quality.
- C**OS-16.3: Low-Emissions Vehicles and Equipment.** Require County operations and encourage private development to provide incentives (such as priority parking) for the use of low- and zero-emission vehicles and equipment to improve air quality and reduce GHG emissions.

2.3.4 Spring Valley Community Plan

The Spring Valley Community Plan (2011b) supplements all existing Elements of the San Diego County General Plan, with specific emphasis on the planning needs of Spring Valley. The Community Planning Area (CPA) of Spring Valley covers approximately 11 square miles and contains the communities and specific neighborhoods known as Bancroft, Brookside, Spring Valley, Lakeside, Dictionary Hill, Sweetwater Village, Rancho San Diego, and La Presa. The Spring Valley Community Plan contains goals and policies that enhance the quality of life for CPA residents by promoting businesses that maintain or improve the character of Spring Valley. There are no specific goals or policies in the Spring Valley Community Plan that pertain exclusively to air quality.

2.4 Background Air Quality

The CARB operates a network of air quality monitoring stations throughout the SDAB. The purpose of the monitoring stations is to measure ambient concentrations of pollutants and determine whether ambient air quality meets the California and federal standards. The monitoring station located closest to the project site is the Chula Vista Monitoring Station (80 E. J Street, Chula Vista), located approximately 5.6 miles southwest of the project site. Table 2 indicates the number of days that each standard has been exceeded at the Chula Vista Monitoring Station.

Table 2 Ambient Air Quality at the Chula Vista Monitoring Station

Pollutant	2016	2017	2018
8 Hour Ozone (ppm), 8-Hr Average	**0.068**	**0.074**	**0.064**
Number of days of State exceedances (>0.070)	0	1	0
Number of days of Federal exceedances (>0.070)	0	1	0
Ozone (ppm), Worst Hour	**0.073**	**0.085**	**0.076**
Number of days of State exceedances (>0.09 ppm)	0	0	0
Number of days of Federal exceedances (>0.112 ppm)	0	0	0
Nitrogen Dioxide (ppm) - Worst Hour (Federal Measurements)[1]	**54**	**57**	**52**
Number of days of State exceedances (>18 ppm)	0	0	0
Number of days of Federal exceedances (0.10 ppm)	0	0	0
Particulate Matter 10 microns, μg/m³, Worst 24 Hours	**48**	**59**	**45**
Number of days above Federal standard (>150 μg/m³)	0	0	0
Particulate Matter <2.5 microns, μg/m³, Worst 24 Hours (California)	**23.9**	**42.7**	**41.9**
Number of days above Federal standard (>35 μg/m³)	0	1	1

Source: CARB, 2016, 2017, and 2018.

2.4.1 Sensitive Receptors

Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with a margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14, the elderly over 65, persons engaged in strenuous work or exercise, and people with cardiovascular and chronic respiratory diseases. The majority of sensitive receptor locations are therefore schools, hospitals, and residences.

Sensitive receptors that may be affected by air quality impacts associated with project construction include single-family residences located approximately 150 feet to the west of the project site. Rancho Elementary School (8845 Noeline Avenue, Spring Valley) is located approximately 0.4 mile northwest of the project site (approximately 790 feet from the project site to nearest boundary as the crow flies). There are no hospitals located in the immediate vicinity of the project site.

3 Significance Criteria and Analysis Methodology

3.1 Significance Thresholds

State Thresholds

Pursuant to Appendix G of the CEQA Guidelines, impacts related to air quality would be significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Regional Thresholds

The County of San Diego Guidelines for Determining Significance for Air Quality contains the following trigger criteria to determine whether or not additional information is needed to address Appendix G Section III *Air Quality* of the CEQA Guidelines:[2]

1. Will the project conflict with or obstruct the implementation of the San Diego RAQS and/or applicable portions of the SIP?
2. Will the project result in emissions that would exceed NAAQS or CAAQS or contribute substantially to an existing or projected air quality violation?
3. Will the project result in a cumulatively considerable net increase of any criteria pollutant for which the SDAB is nonattainment under an applicable NAAQS or CAAQS?
4. Will the project expose sensitive receptors to substantial pollutant concentrations?
5. Does the project, which is not an agricultural, commercial, or industrial activity subject to SDAPCD standards, propose a use which would expose considerable number of persons to objectionable odors?

As part of its air quality permitting rules, the SDAPCD has also adopted numerical air quality impact analysis trigger levels to determine whether an air pollution source could contribute individually or cumulatively to the worsening local or regional air quality. As discussed in SDAPCD Rule 20.2 (subsection d.2.i), emissions that do not exceed air quality impact trigger levels would not: cause a violation of a NAAQS or CAAQS anywhere that does not already exceed such standard; cause additional violations of a NAAQS or CAAQS anywhere the standard is already being exceeded; nor prevent or interfere with the attainment or maintenance of any NAAQS or CAAQS. As such, emissions that do not exceed air quality trigger levels would not result in health impacts.

[2] The County guidelines have not been updated since the latest Appendix G update that occurred in 2019.

These trigger levels are also used by planning agencies and local jurisdictions as screening level thresholds for comparative purposes when evaluating projects under CEQA. San Diego County has adopted these trigger level thresholds for evaluating projects under CEQA (San Diego County 2007); a project that would not generate emissions exceeding these SDAPCD screening level thresholds would have a less than significant impact to air quality standards and cumulatively considerable air quality impacts. The screening level thresholds for temporary construction and long-term operational emissions in the SDAB apply to the project and are shown in Table 3.

Table 3 SDAPCD Screening Level Significance Thresholds

	Total Emissions	
Pollutant	**Lbs per Day**	**Tons per Year**
VOCs	75[1]	13.7[2]
NO_x	250	40
CO	550	100
SO_x	250	40
PM_{10}	100	15
$PM_{2.5}$	55[3]	10[3]

[1] Threshold for VOCs based on the threshold of significance for VOCs from the SCAQMD for the Coachella Valley.

[2] 13.7 tons per year threshold based on 75 lbs/day multiplied by 365 days/year and divided by 2,000 lbs/ton.

[3] EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005. Also used by the SCAQMD.

Source: San Diego County 2007

San Diego County CO Emissions Significance Thresholds

CO emissions are the result of the combustion process and, therefore, are primarily associated with mobile source emissions (vehicles). CO concentrations tend to be higher in urban areas where there are many mobile-source emissions. CO "hotspots" or pockets where the CO concentration exceeds the NAAQS and/or CAAQS, have been found to occur only at signalized intersections that operate at or below level of service (LOS) E with peak-hour trips for that intersection exceeding 3,000 trips (San Diego County 2007). Pursuant to the County's CEQA Significance Determination Thresholds, a site-specific CO hotspot analysis should be performed to determine whether health standards are potentially violated and to identify any affected sensitive receptor if a proposed development would:

- Place receptors within 500 feet of a signalized intersection operating at or below LOS E (peak-hour trips exceeding 3,000 trips)
- Cause road intersections to operate at or below a LOS E (with intersection peak-hour trips exceeding 3,000)
- Result in emissions of CO that when totaled with the ambient concentrations, will exceed 1-hour concentration of 20 ppm or an 8-hour average of 9 ppm

3.2 Methodology

Air quality modeling was performed in general accordance with the requirements outlined in the County Guidelines to identify both construction and operational emissions associated with the proposed project. All emissions were calculated using the California Emissions Estimator Model (CalEEMod) software version 2016.3.2 which incorporates current air emission data and standard inputs for a variety of projects.

Project construction is estimated to take between six to seven months, starting in June 2021. Construction activities include site preparation, grading, excavation, building construction, paving, and architectural coating, which would generate diesel and dust emissions. The following construction schedule was estimated and used in CalEEMod for this analysis:

- Site Preparation: approximately two weeks
- Grading: approximately two weeks
- Building Construction: approximately five months
- Paving: approximately two weeks
- Architectural Coating: approximately two weeks

CalEEMod equipment defaults were used for analyzing project construction emissions since the specific construction equipment and quantities are undetermined at this time. Table 4 contains a list of project construction equipment based on CalEEMod defaults. The use of construction equipment would generate criteria air pollutant emissions. For modeling purposes, it was assumed that all construction equipment used would be diesel-powered. Construction emissions associated with the project were quantified by estimating the types and quantity of equipment that would be used on-site during each of the construction phases. Construction emissions are analyzed using the regional thresholds adopted by the County.

Table 4 Project Construction Equipment List (based on CalEEMod, v. 2016.3.2)

Phase	Equipment Type	Quantity
Site Preparation	Graders	1
	Tractors/Loaders/Backhoes	1
Grading	Concrete/Industrial Saws	1
	Rubber Tired Dozers	1
	Tractors/Loaders/Backhoes	2
Building Construction	Cranes	1
	Forklifts	2
	Tractors/Loaders/Backhoes	2
Paving	Cement and Mortar Mixers	4
	Pavers	1
	Rollers	1
	Tractors/Loaders/Backhoes	1
Architectural Coating	Air Compressors	1

Operational emissions include mobile source emissions, energy emissions, and area source emissions.

Mobile source emissions are generated by motor vehicle trips associated with operation of the project. Vehicle emission factors in CalEEMod reflect CARB's motor vehicle Emission Factor inventory program, EMFAC2014. As discussed in Section 2.3.1, *SAFE Vehicle Rule*, the U.S. EPA and NHTSA's SAFE Vehicle Rule relaxed federal vehicle standards and revoked California's vehicle standards. These relaxed vehicle standards have negligible effects on vehicle criteria pollutant emission factors in the near-term. Based on CARB released off-model adjustment factors, vehicle emission factors for NO_X, total organic gases (TOG), CO, and PM each increase by less than 0.4 percent in 2022 (CARB 2020; Appendix A). The EPA has stated that EMFAC2014 remains approved without modification (U.S. EPA 2020). As such, mobile source emissions were estimated using standard emission factors from EMFAC2014, as included in CalEEMod.

Emissions attributed to energy use include electricity and natural gas consumption for the refrigeration system, and heating and cooling systems. Area source emissions are generated by landscape maintenance equipment, use of consumer products, and painting. Stationary source emissions from fuel storage and dispensing were also calculated based on guidance for underground storage tanks provided by South Coast Air Quality Management District (SCAQMD 2017). The emissions factor for VOCs contained in that guidance were established by the CARB and include emissions from loading, storing, dispensing, and spills or leaks from all components of transfer and dispensing facilities. Health risks from operation of the gas stations were estimated based on the California Air Pollution Control Officers Association's (CAPCOA's) *Gasoline Service Station Industrywide Risk Assessment Guidelines* (CAPCOA 1997). To determine whether a regional air quality impact would occur, the increase in total emissions is compared to the County recommended regional thresholds for operational emissions.

Consistency with Applicable Regulatory Requirements

The project would be required to comply with County grading permit requirements. The project site would be watered twice per day during construction activities to reduce fugitive dust particulates, and this condition was included in the project-specific CalEEMod (Appendix A).

The architectural coating phase results in the greatest release of VOCs during construction activities. The emissions modeling for the project includes the use of low-VOC paint (100 grams per liter [g/L] for non-flat coatings and 50 g/L for flat coatings) as required by SDAPCD Rule 67.0.1.

The project's energy use estimate is conservative since the modeling is based on less stringent requirements under 2016 Title 24 as incorporated in CalEEMod version 2016.3.2. The project would be required to comply with applicable 2019 Title 24 energy efficiency requirements, and would consume less energy than modeled in CalEEMod as a result.

4 Project Impact Analysis

4.1 Conformance to the Regional Air Quality Strategy

The RAQS relies on information from CARB and SANDAG, including projected growth in the County, and other source emissions from mobile and area to forecast future emissions and determine from strategies necessary for the reduction of stationary source emissions through regulatory controls. Projects involving development that is consistent with the growth anticipated by the County's General Plan are consistent with the RAQS.

According to demographic and socioeconomic estimates provided by the SANDAG Data Surfer database, unincorporated San Diego County is forecast to increase the number of civilian jobs by 41 percent between 2012 (116,268 jobs) to 2050 (163,933 jobs; SANDAG 2013). The project is anticipated to provide a total of ten new employment opportunities and these positions are expected to be filled by those in the Spring Valley and neighboring communities. Project employment opportunities would account for 0.02 percent[3] of the job growth forecast by SANDAG for the unincorporated County.

Furthermore, the project site has a General Plan land use designation of Limited Industrial. The southern portion of the project site (fronting Elkelton Place, approximately 5,900 square feet) has a zoning designation of M52 (Limited Impact Industrial Use), which permits commercial gasoline sales and automotive and equipment cleaning uses pursuant to limitations "12" and "8," respectively as noted in Section 2980 of the San Diego County Zoning Ordinance. The northern portion of the project site (fronting Paradise Valley Road, approximately 15,600 square feet) has a zoning designation of M54 (General Impact Industrial Use), which also permits commercial gasoline sales and automotive and equipment cleaning uses with no limitations. Both the M52 and M54 use regulations allow convenience retail operations under a minor use permit, which the project would require for the proposed convenience store. Therefore, no amendments to the County's General Plan, the Spring Valley Community Plan, or County zoning would be required to accommodate the project. The project would conform to the applicable plans and therefore, the project's impact on the RAQS and SIP would be less than significant.

4.2 Cumulatively Considerable Net Increase of Criteria Pollutants

Construction Impacts

Table 5 and Table 6 summarize maximum daily and annual emissions of pollutants throughout project construction. Emissions of VOCs, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ would not exceed the County's screening level thresholds during project construction, assuming adherence to the conditions listed above under Section 3.2, *Methodology*, such as site watering during construction activities as required by the County grading permit. As shown in Table 5 and Table 6, emissions generated during the construction of project would not exceed San Diego County screening level thresholds for VOCs, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Therefore, project construction would not result

[3] Project employment as percentage of SANDAG employment forecast for unincorporated County: (10 project jobs/[163,933 2050 jobs – 116,268 jobs]) * 100 = 0.02 percent

in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard. Air quality impacts would be less than significant, and no mitigation measures would be necessary.

Table 5 Maximum Daily Estimated Construction Emissions

	Maximum Emissions[1]					
Emissions Source	**VOCs**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Daily Construction Emissions (lbs/day)						
Site Preparation (6/1/2021-6/12/2021)						
Unmitigated Construction On-Site	0.6	7.8	4.0	<0.1	0.3	0.3
Unmitigated Construction Off-Site	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Grading (6/13/2021-6/26/2021)						
Unmitigated Construction On-Site	0.8	7.3	7.6	<0.1	1.2	0.8
Unmitigated Construction Off-Site	<0.1	1.8	0.7	<0.1	0.2	<0.1
Building Construction (6/27/2021-11/7/2021)						
Unmitigated Construction On-Site	0.8	8.0	7.3	<0.1	0.4	0.4
Unmitigated Construction Off-Site	<0.1	0.4	0.4	<0.1	0.1	<0.1
Paving (11/8/2021-11/20/2021)						
Unmitigated Construction On-Site	0.8	6.7	7.1	<0.1	0.4	0.3
Unmitigated Construction Off-Site	<0.1	<0.1	0.4	<0.1	0.1	<0.1
Architectural Coating (11/21/2021-12/4/2021)						
Unmitigated Construction On-Site	14.3	1.5	1.8	<0.1	<0.1	<0.1
Unmitigated Construction Off-Site	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Daily Emissions[2]	14.3	9.1	8.3	0.1	1.4	0.8
San Diego County Screening Level Thresholds	75	250	550	250	100	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: All calculations were made using CalEEMod v.2016.3.2. See Appendix A for calculations. Site Preparation, Grading, Paving, Building Construction, and Architectural Coating totals include worker trips, soil export hauling trips, construction vehicle emissions and fugitive dust. SDAPCD uses the term VOC to denote organic precursors, interchangeably with ROGs. As such, the term VOCs is used in this table.

[1] Grading phases incorporate anticipated emissions reductions from site watering, as required for all construction sites located in the SDAB. The architectural coating phases incorporate anticipated emissions reductions from the conditions listed above, which are required by SDAPCD Rule 67.0.1.

[2] Maximum Daily Emissions = (construction on-site) + (construction off-site) emissions for highest estimated emission per construction phase

Table 6 Maximum Annual Estimated Construction Emissions

	Maximum Emissions[1]					
Emissions Source	**VOCs**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Annual Construction Emissions (tons/yr)						
Site Preparation						
Unmitigated Construction On-Site	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Unmitigated Construction Off-Site	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Grading						
Unmitigated Construction On-Site	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Unmitigated Construction Off-Site	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Building Construction						
Unmitigated Construction On-Site	<0.1	0.4	0.3	<0.1	<0.1	<0.1
Unmitigated Construction Off-Site	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Paving						
Unmitigated Construction On-Site	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Unmitigated Construction Off-Site	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Architectural Coating						
Unmitigated Construction On-Site	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Unmitigated Construction Off-Site	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Annual Emissions[2]	0.1	0.4	0.3	<0.1	<0.1	<0.1
San Diego County Screening Level Thresholds	13.7	40	100	40	15	10
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: All calculations were made using CalEEMod v.2016.3.2. See Appendix A for calculations. Demolition, Site Preparation, Grading, Paving, Building Construction, and Architectural Coating totals include worker trips, soil export hauling trips, construction vehicle emissions and fugitive dust. SDAPCD uses the term VOC to denote organic precursors, interchangeably with ROGs. As such, the term VOCs is used in this table.

[1] Grading phases incorporate anticipated emissions reductions from site watering, as required for all construction sites located in the SDAB. The architectural coating phases incorporate anticipated emissions reductions from the conditions listed above, which are required by SDAPCD Rule 67.0.1.

[2] Maximum Annual Emissions = (construction on-site) + (construction off-site) emissions for highest estimated emission per construction phase

Operational Impacts

Table 7 summarizes estimated emissions associated with operation of the project. The majority of the operational emissions generated would be due to stationary source emissions from the fuel storage and dispensing and mobile emissions from vehicle trips to and from the project site. Project-specific trip generation rates were included in the CalEEMod analysis based on the traffic study completed for the project, which concluded the project would generate a 1,240 average daily trips (ADT); which includes 51 percent primary trips, 21 percent diverted trips, and 28 percent pass-by trips (Urban Systems Associates, Inc. 2020). CalEEMod default total average daily trip rates for the project were significantly higher than compared to the project-specific trip rates at 4,379 trips during weekdays, 6,525 on Saturdays, and 5,567 on Sundays, which may include non-primary trips[4]

[4] Non-primary trips are trips that exist on the road system in existing conditions. These are trips that would stop at the proposed project on their way to or from their primary trip purpose. Urban Systems Associates, Inc. 2020. Paradise Valley Rd. Gas Station Focused Transportation Impact Study.

(Appendix A). According to the CalEEMod User Guide (2017), trip rates for the selected land uses are based on the Institute of Transportation Engineers Trip Generation Manual, 9th Edition (2012). The project-specific traffic study used regional trip rates for the proposed land uses from SANDAG's *(Not So) Brief Guide of Traffic Generators for the San Diego Region* (2002), which contains trip rates specific to the County. The use of CalEEMod default trip rates would result in an overestimate of project mobile emissions by approximately five times the trip rates calculated in the project-specific traffic study. Therefore, the trip rates provided in the project-specific traffic study were used in the CalEEMod analysis to provide an accurate emissions output for the project.

The project includes the installation of a vapor capture and control system, the Veeder-Root Carbon Canister Vapor Polisher (CCVP), to capture and hold excess gasoline vapors in the underground storage tanks and vehicle tanks (when fueling), as required by SDAPCD Rules 61.3.1, 61.4, and 61.4.1. The CCVP system is a toxics best available control technology (T-BACT) feature that would ensure fuel vapors are efficiently captured during vehicle fueling activities. As shown in Table 7, emissions generated during the operation of project would not exceed San Diego County screening level thresholds for VOCs, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$. Therefore, project operation would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard. Air quality impacts would be less than significant, and no mitigation measures would be necessary.

Table 7 Project Operational Emissions

	Estimated Emissions (lbs/day)					
Emissions Source	**VOCs**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Area	0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Stationary Emissions[1]	3.0	<0.1	<0.1	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	1.7	6.3	15.3	<0.1	4.0	1.1
Project Total[2]	**4.9**	**6.3**	**15.3**	**<0.1**	**4.0**	**1.1**
San Diego County Screening Level Thresholds	75	250	550	250	100	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

See Appendix A for CalEEMod output. Highest number between the summer and winter output is shown. Note: Numbers may not add up due to rounding.

[1] Calculated for underground storage tanks for gasoline and diesel products, based on SCAQMD's Annual Emissions Reporting Program. Results based on SCAQMD's guidance calculate VOCs, a term used interchangeably with ROGs by SDAPCD. Emissions of other air pollutants from stationary project emissions are considered negligible.

[2] Project Total Emissions = sum of all operational source emissions for highest estimated emission per operational phase

4.3 Impacts to Sensitive Receptors

Carbon Monoxide Hotspot Analysis

As previously discussed, carbon monoxide is a colorless, odorless, poisonous gas that may be found in high concentrations near areas of high traffic volumes. CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. The SDAB is in attainment of State and federal CO standards. The last recorded maximum 8-hour average CO level for the San Diego Air Basin was in 2012 at 3.61 ppm, which is well below the 9 ppm state and federal eight-hour standard (CARB 2012). No monitoring stations located in the SDAB have data for CO since 2012.

A CO hotspot analysis is required by the County if a proposed development would cause road intersections to operate at or below a LOS E with intersection peak-hour trips exceeding 3,000 trips.

The traffic study prepared for the project studies six intersections in the vicinity of the project site, including the project driveway off of Paradise Valley Road (Urban Systems Associates, Inc. 2020). The project would add 893 daily trips (which includes all project generated trips, including trucks), which include 71 AM peak hour and 80 PM peak hour trips Table 8 provides a summary of existing and existing plus project intersection LOS based on the traffic study.

Table 8 Existing Plus Project Intersection Level of Service Summary

	Existing LOS		Existing + Project LOS		
Roadway Segment	AM Peak	PM Peak	AM Peak	PM Peak	Significant Impact (Y/N)
Paradise Valley Road/Elkelton Place	D	D	D	D	N
Paradise Valley Road/SR-74 SB On-Ramp	C	A	D	A	N
Elkelton Place/SR-125 SB Off-Ramp	B	D	B	D	N
Jamacha Boulevard/Sweetwater Road – SR-54 NB Off-Ramp	C	D	C	D	N
Jamacha Boulevard/Gillespie Drive	A	B	B	B	N
Jamacha Road/Sweetwater Road	C	D	C	D	N
Paradise Valley Road/Project Driveway	DNE	DNE	B	B	N

Source: Urban Systems Associates, Inc. 2020

[1] DNE = Does Not Exist

The additional traffic generated during project operation would not cause intersections in the vicinity of the project site to operate at or below LOS E. The traffic study concluded that the proposed project would not result in any significant intersection impacts, and no mitigation is required beyond the payment of the Transportation Impact Fee at the time of building permit issuance (Urban Systems Associates, Inc. 2020). Therefore, a CO hotspot analysis is not required for the proposed project and project-generated trips would not result in, or substantially contribute to, CO concentrations that exceed the eight-hour ambient air quality standards along area roadways and intersections.

Toxic Air Contaminants (TACs)

High-volume TAC generators that are listed as potential health risk sources include the operation of commercial diesel engines and truck stops, landfills and incinerators, and chemical manufacturers

(CARB 2005). The proposed project entails the construction and operation of a gas station with convenience store and carwash tunnel, which is identified in the CARB *Air Quality and Land Use Handbook* (2005) as a facility type that emits TACs, mainly benzene.

Construction activities may also result in the generation of TACs. However, the construction period estimated for the project would be temporary and limited to approximately six to seven months.

Emissions resulting from the gasoline dispensing has the potential to result in TACs (e.g., benzene, hexane, MTBE, toluene, xylene) and have the potential to contribute to health risk in the project vicinity. It should be noted that standard regulatory controls would apply to the project in addition to any permits required that demonstrate appropriate operational controls. The California Air Pollution Control Officers Association (CAPCOA) *Gasoline Service Station Industrywide Risk Assessment Guidelines* (1997) provides a screening method to determine potential cancer risk as a function of million gallons of throughput and downwind distance from the gas station that has employed all toxics best available control technologies (T-BACT) as required by the SDAPCD (pursuant to Rules 61.3.1 and 61.4.1) and CARB. The T-BACT included in the project entails the Veeder-Root CCVP system. Based on these guidelines, 1.2 million gallons of throughput at a distance of 40 meters (130 feet) from the gas station would result in a cancer risk of 2.42 per million. It should be noted that subsequent to the CAPCOA guidelines being released, the Office of Environmental Health Hazard Assessment (OEHHA) published new (2015) risk assessment guidelines to account for potential early-life exposures. The 2015 OEHHA methodology results in risk estimates approximately 1.5 to 3 times higher than what would have previously been estimated[5]. As such, to account for the 2015 OEHHA methodology, the risk per million gallons of throughput can conservatively be multiplied by 3, resulting in an estimated 7.3 risk per million, which is less than the threshold of 10 per million (Appendix A).

Lastly, mobile emissions during project operations would primarily be composed of passenger and light-duty vehicles (59.9%) and light trucks (18.1%) accessing the gas station and convenience store, as shown in Table 9 below. Approximately 2.4 percent of the vehicles visiting the project site would be heavy trucks according to CalEEMod, which takes fuel and consumer goods delivery trucks into account. Delivery truck trips would be made to the project site based on a schedule, and additional heavy-duty trucks driven by project customers may occur as well. However, the project is designed to primarily serve customers in light autos and trucks. The project would not attract a large number of trips from large or heavy-duty vehicles that could generate mobile diesel emissions due to the passenger vehicle-serving nature of the proposed use. Therefore, construction and operation of the proposed gas station and convenience store would not generate significant amounts of TACs that would adversely impact sensitive receptors in the vicinity of the project site.

[5] https://www.arb.ca.gov/toxics/rma/rma.htm

Table 9 CalEEMod Vehicle Fleet Mix

Vehicle Type	Percent Type
Light Auto	59.9%
Light Truck < 3,750 lbs	4.1%
Light Truck 3,751-5,750 lbs	18.1%
Med Truck 5,751-8,500 lbs	10.6%
Lite-Heavy Truck 8,501-10,000 lbs	1.6%
Lite-Heavy Truck 10,001-14,000 lbs	0.5%
Med-Heavy Truck 14,001-33,000 lbs	1.6%
Heavy-Heavy Truck 33,001-60,000 lbs	2.4%
Other Bus	0.2%
Urban Bus	0.2%
Motorcycle	0.6%
School Bus	0.1%
Motor Home	0.1%
Total	**100.0%**

Source: CalEEMod v. 2016.3.2 (Appendix A)

Furthermore, a gas station permit application with the SDAPCD would be required for the proposed project. Such projects fall under a general HRA that is in place with the SDAPCD and a project-specific HRA is not required (K. Creaven, personal conversation, November 5, 2018) since use categories such as gas stations are considered small foot-print facilities with small zones of impact (Office of Environmental Health Hazard Assessment 2015). Following discretionary review, the project would be required to submit an application for permit through the SDAPCD; neither project construction nor operation would begin until that permit has been reviewed and approved by SDAPCD.

4.4 Odor Impacts

SDAPCD Rule 51, commonly referred to as the public nuisance rule, prohibits emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. The potential for an operation to result in odor complaints from a “considerable” number of persons in the area would be considered to be a significant, adverse odor impact.

The project would involve the temporary use of diesel-powered construction equipment, which would generate exhaust that may be noticeable for short durations at adjacent properties. However, construction activities would be temporary, and construction emissions would not exceed San Diego County screening level thresholds.

The land use and industrial operations typically associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, refineries, landfills, dairies, and fiberglass molding. The proposed operations of a gas station, convenience store, and carwash tunnel are not typically associated with objectionable odors, though odors from gasoline product could be noticeable in the immediate vicinity of the site. The project site vicinity is adjacent to the SR-125 on- and off-ramps (tapering 60 to 210 feet and approximately 90 feet to the east of

the project site, respectively). The nearest sensitive receptors consist of existing residential development located approximately 150 feet west of the project site. It is unlikely that the odors from the proposed project would be distinguishable from existing sources, given the vehicle emissions associated with adjacent roadways and SR-125 in the vicinity of the project site. Furthermore, odors generated from proposed uses would dissipate and be reduced with increasing distance from the project site.

Furthermore, as noted in Section 1.2, *Project Location and Description*, the project would include a Veeder-Root CCVP system with a Stage II vapor recovery system (balance system) to ensure efficient capture of UST and vehicle tank vapors during vehicle fueling activities as required by SDAPCD Rule 61.4. Therefore, the project would not generate objectionable odors.

5 Conclusion

Based on the analysis completed, implementation of the proposed project would not result in any air quality exceedances of applicable short-term construction and long-term operational thresholds. The project would not generate impacts related to CO hotspots or odors, and the project would be consistent with RAQS. Construction and operation of the proposed gas station and convenience store would not generate TACs that would adversely impact sensitive receptors in the vicinity of the project site. Therefore, no additional measures beyond those required by SDAPCD rules are needed to reduce project air quality impacts.

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7 List of Preparers

The contents of this report represent an accurate depiction of the air quality environment and impacts within and surrounding the proposed project site. This report was prepared utilizing the latest emissions rates and reduction methodologies.

This report was originally prepared by Lynette Leighton, MEM AICP of Rincon Consultants, Inc., reviewed and approved by Bill Maddux of Rincon Consultants, Inc., and submitted October 2019, with minor revisions by Jack Emerson of Rincon Consultants, Inc. and reviewed and approved by Lynette Leighton of Rincon Consultants, Inc. on April 2, 2021.

The revised report was prepared by Jack Emerson of Rincon Consultants, Inc. and reviewed by Lynette Leighton of Rincon Consultants, Inc. for resubmittal in May 2021. The statements furnished in this report and associated figures are true and correct to the best of my knowledge and belief.

Bill Maddux, County-Approved Air Quality Consultant — 6/01/2020 Date

Lynette Leighton, County-Approved Air Quality Consultant — 4/2/2021 Date

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Appendix A

CalEEMod Air Quality Reports and Calculations

- Appendix A1 EMFAC Off-Model Light-Duty Vehicle Adjustment Factors – SAFE Vehicle Rule
- Appendix A2 CalEEMod Air Quality Reports – Proposed Project
- Appendix A3 CalEEMod Air Quality Report – Proposed Project with CalEEMod Default Trips
- Appendix A4 SCAQMD Gas and Diesel Throughput Calculations
- Appendix A5 Screening Level Health Risk Assessment Calculations

Appendix A1

EMFAC Off-Model Light-Duty Vehicle Adjustment Factors – SAFE Vehicle Rule

Appendix A2

CalEEMod Air Quality Reports – Proposed Project (Annual, Summer, Winter)

Appendix A3

CalEEMod Air Quality Report – Proposed Project with CalEEMod Default Trips

Appendix A4

SCAQMD Gas and Diesel Throughput Calculations

Appendix A5

Screening Level Health Risk Assessment Calculations