Bradley Court Convalescent Center Expansion Project PDS2021-MUP-85-053W2

Air Quality Report

prepared for

County of San Diego

Project Proponent
Steve L'Hommedieu
ARCO Construction Company, Inc.
900 North Rock Hill Road
St. Louis, Missouri 63119

prepared by

Rincon Consultants, Inc.
Lynette Leighton, Senior Environmental Planner
2215 Faraday Avenue, Suite A
Carlsbad, California 92008

September 17, 2024

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Bradley Court Convalescent Center Expansion Project PDS2021-MUP-85-053W2

Air Quality Report

prepared for

County of San Diego

Project Proponent
Steve L'Hommedieu
ARCO Construction Company, Inc.
900 North Rock Hill Road
St. Louis, Missouri 63119

prepared by

Rincon Consultants, Inc.
Lynette Leighton, Senior Environmental Planner
2215 Faraday Avenue, Suite A
Carlsbad, California 92008

September 17, 2024

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

This report prepared on 50% recycled paper with 50% post-consumer content.

Table of Contents

Tables

Figures

Appendices

Glossary of Terms and Acronyms

Air Quality Management Plan	AQMP
Assembly Bill	AB
Assessor's Parcel Number	APN
California Air Resources Board	CARB
California Ambient Air Quality Standards	CAAQS
California Clean Air Act	CCAA
California Emissions Estimator Model	CalEEMod
California Environmental Quality Act	CEQA
California Environmental Protection Agency	CalEPA
Carbon dioxide	CO2
Carbon monoxide	CO
Clean Air Act Amendments (Federal)	CAAA
Cubic Yards	CY
Health Risk Assessment	HRA
Lead	Pb
Level of Service	LOS
National Ambient Air Quality Standards	NAAQS
Nitric oxide	NO
Nitrogen oxides	NOx
Office of Environmental Health Hazard Assessment	OEHHA
Ozone	O_3
Particulate Matter$_{10/2.5}$	$PM_{10/2.5}$
Parts per billion	ppb
Parts per million	ppm
Regional Air Quality Strategy	RAQS
San Diego Air Basin	SDAB
San Diego County Air Pollution Control District	SDAPCD
San Diego Association of Governments	SANDAG
South Coast Air Quality Management District	SCAQMD
Square feet/foot	sf
Sulfur dioxide	SO2

State Implementation Plan	SIP
Toxic Air Contaminants	TACs
United States Environmental Protection Agency	USEPA
Volatile Organic Compounds	VOCs

Executive Summary

This air quality impact study has been completed to determine air quality impacts associated with the proposed development of the Bradley Court Convalescent Center Expansion Project (project). The project site is bounded by East Bradley Avenue to the north, North Mollison Avenue and Greenfield Drive to the east and south, and Sams Hill Road to the west. The project site is contained on Assessor's Parcel Number (APN) 387-142-36-00 in a developed area with mobile home residences across East Bradley Avenue to the north; multi-family residences to the east, south, and west; and commercial uses to the east and west. The first proposed building is on a vacant parcel north of the existing Convalescent Center and the second proposed building is between the two existing building south of the project site. The site is subject to the Lakeside Community Design Review, and the General Plan Category Village, Land Use Designation Village Residential (VR-24). No amendments to the County's General Plan, the Lakeside Community Plan, or County zoning would be required to accommodate the project.

The project would construct a new 26,515 square-foot (sf) assisted living building and a new 10,613 sf building.

Criteria pollutant 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 buildings and parking lot. A majority of the operational emissions generated by the project would be due to 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.

Construction-related activities would result in short-term, project-generated emissions of diesel particulate matter (DPM) exhaust emissions from off-road, heavy-duty diesel equipment for site preparation, grading, building construction, and other construction activities. The maximum on-site $PM_{2.5}$ emissions, which are used to represent DPM emissions for this analysis,[1] would occur during site preparation and grading activities Therefore, construction of the proposed buildings 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 (55.4 percent) and light trucks (6.3 percent) accessing the proposed buildings and parking lot. The project would not attract substantial

[1] It can be conservatively assumed that DPM emissions would be equivalent to $PM_{2.5}$ because $PM_{2.5}$ emissions make up 92 percent of total diesel off-road equipment (e.g., construction equipment) PM emissions based on SCAQMD guidance (SCAQMD 2015).

trips from large or heavy-duty vehicles that could generate mobile diesel emissions due to the nature of the proposed use. The proposed project land use type is not a typical toxic air contaminants (TACs) emitter, and the new emergency generator would be permitted through San Diego County Air Pollution Control District (SDAPCD). In compliance with SDAPCD permitting requirements the generator would not result in substantial TAC emissions. Therefore, operation of the proposed buildings and parking lot would not generate 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 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 the proposed buildings and parking lot, located in the Lakeside neighborhood of San Diego County.

This report has been prepared by Rincon Consultants, Inc. under contract to Steve L'Hommedieu of ARCO Construction Company, Inc. 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 Bradley Court Convalescent Center Expansion Project (project) is located on parcel APN 387-142-36-00 at 675 East Bradley Avenue in the Lakeside Community Plan Area within unincorporated San Diego County. The first proposed building is on a vacant parcel north of the existing Convalescent Center and the second proposed building is between the two existing building south of the project site. The project location's regional location and vicinity are shown in Figure 1 and Figure 2.

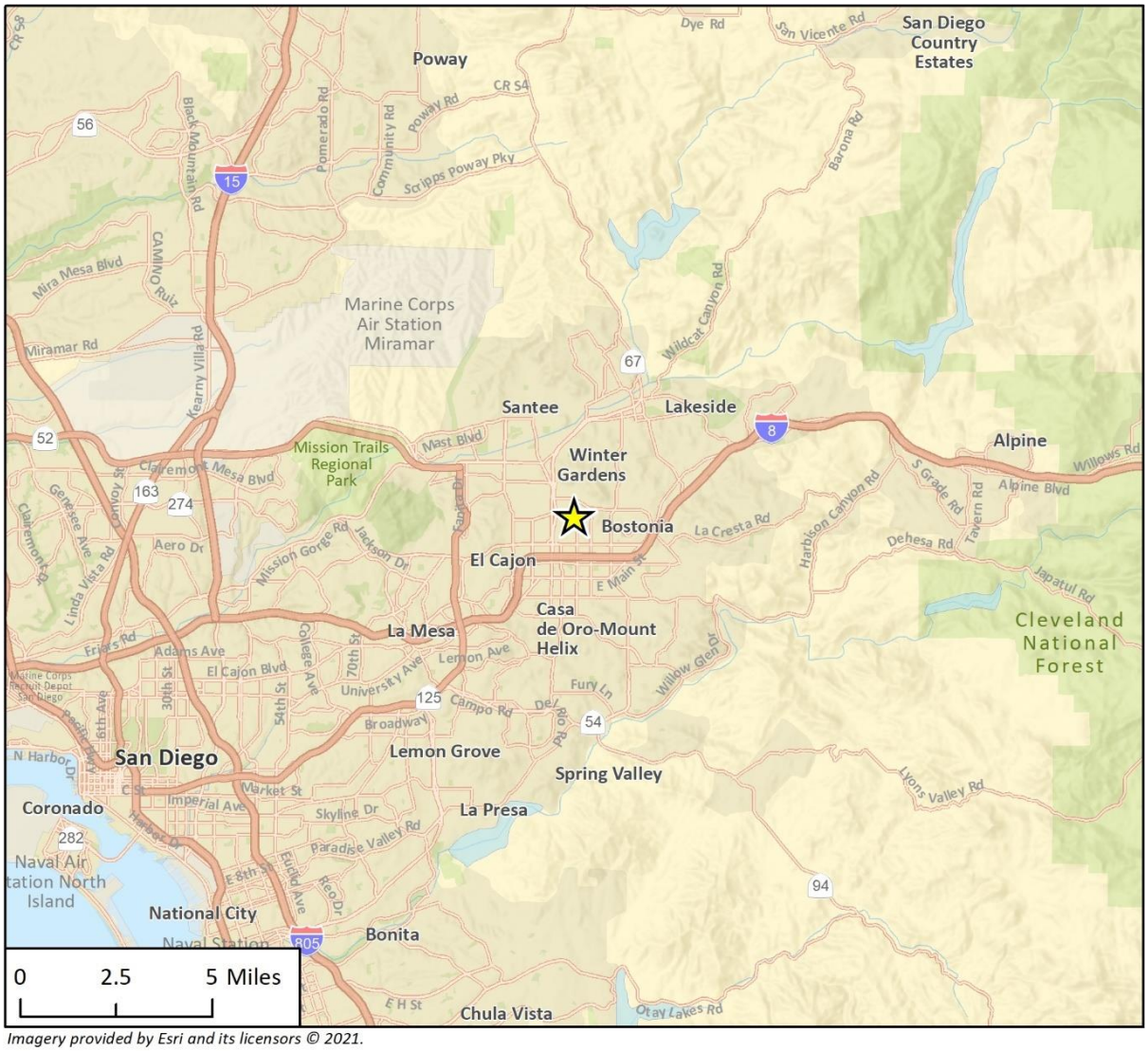
The project would construct a new 26,515 sf assisted living building and a new 10,613 sf building. The total project site would include four buildings with a total of 153 beds. The proposed sitework will include 73 parking spaces, and a new fire lane access road allowing access to the rear of existing Building 2 and the new Building 3. A new driveway approach along Bradley Avenue will be placed for full fire truck access. New sewer, domestic water, and fire water (including one additional fire hydrant) will be provided with the sitework. Two trash enclosures for refuse and recycled goods will be provided. Along with new landscaping throughout the facility, site lighting will be installed to provide a minimum of 1.0 FC of lighting along all egress paths to the public way. See Figure 3 for the project site plan.

The Transitional Care Building, located on the northern portion of the site, would be served by packaged terminal air conditioning (PTAC) units and split systems. The Skilled Nursing Building, located on the southern portion of the site, would be served by rooftop heating, ventilation, and air conditioning (HVAC) units. The project would include a 150 kilowatt generator with enclosure to the southeast location of the existing generator, which would be removed. The project would also include a can wash; no mechanical equipment would be associated with the can wash. A can wash cleans the interior and exterior surfaces of beverage and food cans.

The site is subject to the Lakeside Community Design Review, and the General Plan Category Village, Land Use Designation Village Residential (VR-24). Zoning for the site is Urban Residential (RU) with special designator "C". Access would continue to be provided from East Bradley Avenue. According to the Initial Consultation Checklist provided by the County, to process the project application a Major Use Permit Modification is required.

The proposed development would require site preparation and grading. An estimated 4,279 cubic yards of soil would be cut and recompacted on site. An additional estimated 4,909 cubic yards of fill would be imported to the project site. Project construction would begin in April 2022 and be completed by June 2023.

Figure 1 Regional Location



Imagery provided by Esri and its licensors © 2021.

Project Location

N

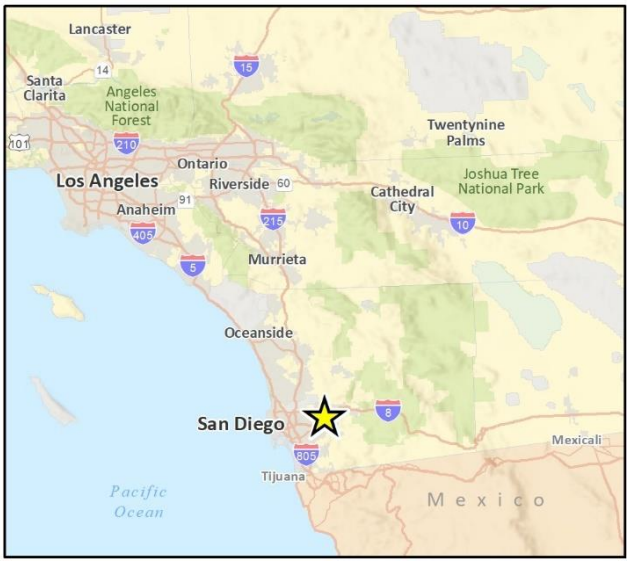
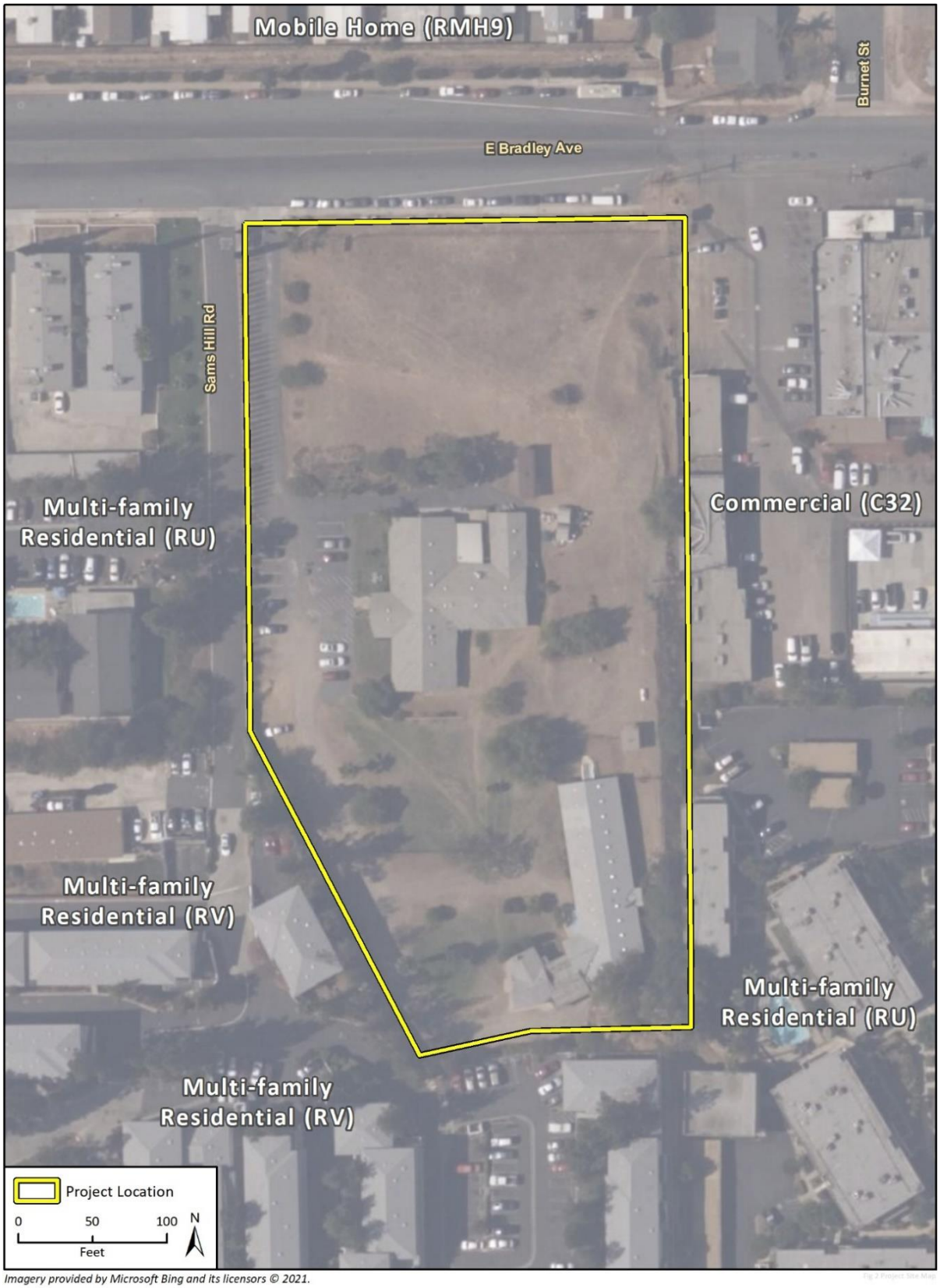
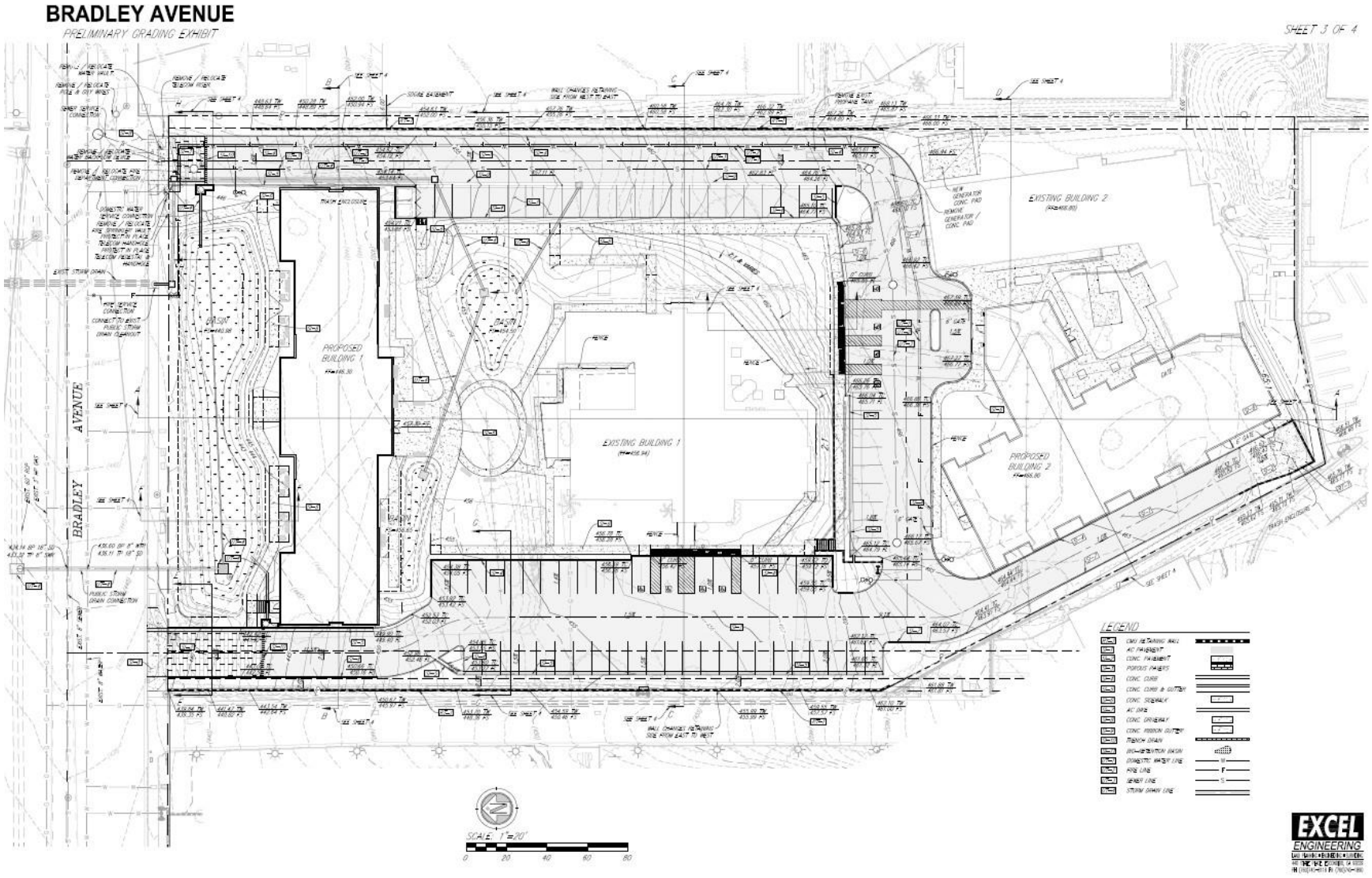


Figure 2 Project Location



Imagery provided by Microsoft Bing and its licensors © 2021.

Figure 3 Project Site Plan



2 Existing Conditions

2.1 Existing Setting

The project site is bounded by East Bradley Avenue to the north, North Mollison Avenue and Greenfield Drive to the east and south, and Sams Hill Road to the west. The project site is in a developed area with mobile home residences across East Bradley Avenue to the north; multi-family residences to the east, south, and west; and commercial uses to the east and west.

The site is accessed by a single driveway off East Bradley Avenue. The project site has a gentle rising slope from north to south, rising from an elevation of approximately 442 feet at the northern portion of the entrance to approximately 470 feet at the southern portion of the site. The project site is located approximately 0.4 mile east of State Route 67.

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 17 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 (USEPA) 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 USEPA 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 (PM) 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 SDAPCD is the designated air quality control agency for the SDAB. The SDAB currently meets the NAAQS for all criteria air pollutants except O_3 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 O_3, 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

O_3 is a highly oxidative unstable gas, produced by a photochemical reaction (triggered by sunlight) between NO_X and ROG/VOC.[2] NO_X is formed during the combustion of fuels, while VOCs 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. Depending on the level of exposure, ozone can cause coughing and sore or scratchy throat; make it more difficult to breathe deeply and vigorously and cause pain when taking a deep breath; Inflame and damage the airways; make the lungs more susceptible to infection; aggravate lung diseases such as asthma, emphysema, and chronic bronchitis and increase the frequency of asthma attacks. Groups most sensitive to O_3 include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors (USEPA 2021b).

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

[2] 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.

areas of high traffic volumes. When CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease. These people already have a reduced ability for getting oxygenated blood to their hearts in situations where the heart needs more oxygen than usual. They are especially vulnerable to the effects of CO when exercising or under increased stress. In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina. (USEPA 2021a).

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 USEPA 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 USEPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the USEPA.

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

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

Source: CARB 2016

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. Breathing air with a high concentration of NO_2 can irritate airways in the human respiratory system. Such exposures over short periods can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. People with asthma, as well as children and the elderly are generally at greater risk for the health effects of NO_2 (USEPA 2021c). 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 O_3/smog and acid rain.

Suspended Particulates

Atmospheric PM 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 $PM_{2.5}$) 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. PM_{10} can cause increased respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling. 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. $PM_{2.5}$ can cause increases in respiratory disease, lung damage, cancer, and premature death, reduced visibility, surface soiling. Particles can aggravate heart diseases such as congestive heart failure and coronary artery disease (San Diego County 2007). More than half of the small and fine PM that is inhaled into the lungs remains there, which can cause permanent lung damage (USEPA 2021d). 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 USEPA 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 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 USEPA. The goal of an AQMP is to reduce pollutant concentrations below the 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 O_3 standard. The pollutants addressed in the RAQS are volatile organic compounds (VOCs) and NO_X, precursors to the photochemical formation of O_3 (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 PM 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 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 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 O_3.

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 Lakeside Community Plan

The Lakeside Community Plan (2011b) supplements all existing Elements of the San Diego County General Plan, with specific emphasis on the planning needs of Lakeside. The Community Planning Area (CPA) of Lakeside is located in the western foothills of the Cuyamaca Mountains on the San Diego River about 21 miles east of downtown San Diego. The CPA covers approximately six thousand acres of the Rancho El Cajon land. The SANDAG identified the Lakeside Community Planning Area to have an estimated population of 77,442 with a total of 27,457 housing units. The Lakeside Community Plan should be regarded as applications of broad General Plan policies that are designed to fit the specific or unique circumstances existing in the individual communities. Specific goals or policies in the Lakeside Community Plan that pertain exclusively to air quality:

1. Protect the public health and safety by requiring public agencies and utilities to adhere to air, water, noise, and visual pollution standards.
2. Encourage types and patterns of development that minimize water pollution, air pollution, fire hazard, soil erosion, silting, slide damage, flooding, and severe hillside cutting and scarring.

2.4 Background Air Quality

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 El Cajon-Lexington Elementary School (533 S. First Street, El Cajon), located approximately two miles north of the project site. Table 2 indicates the number of days that each standard has been exceeded at the El Cajon-Lexington Elementary School Monitoring Station.

Table 2 Ambient Air Quality at the El Cajon-Lexington Elementary School Monitoring Station

Pollutant	2018	2019	2020
8 Hour Ozone (ppm), 8-Hr Average	**.079**	**.074**	**.083**
Number of days of State exceedances (>0.070)	2	2	14
Number of days of Federal exceedances (>0.070)	2	0	5
Ozone (ppm), Worst Hour	**.087**	**.094**	**.094**
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]	**45**	**39**	**44**
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	**43**	**38.7**	**N/A**
Number of days above Federal standard (>150 μg/m³)	0	0	0
Particulate Matter <2.5 microns, μg/m³, Worst 24 Hours (California)	**36.2**	**23.8**	**38.2**
Number of days above Federal standard (>35 μg/m³)	1	0	2

Source: CARB 2021

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 (including convalescent care facilities).

The sensitive receivers nearest to the project site are the mobile home residences approximately 125 feet to the north, and the multi-family residences approximately 15 to 65 feet to the east, south, and west. The mobile homes across East Bradley Avenue to the north are zoned Mobile-Home Residential (RMH9); the multi-family residences to the east and northwest are zoned Urban-Residential (RU); and the multi-family residences to the south are zoned Variable-Family Residential (RV). The nearest school to the project site is Magnolia Elementary School approximately 1,000 feet southwest of where construction could occur. 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:[3]

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 from criteria pollutants.

[3] 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 the SDAPCD trigger level thresholds for evaluating projects under CEQA (San Diego County 2007). Projects 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 were developed to protect the public health that align with ambient air quality standards and are shown in Table 3.

Table 3 San Diego County 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.

VOC = volatile organic compounds, NOX = nitrogen oxides, CO = carbon monoxide, SOx = sulfur oxides, PM10 = particulate matter 10 microns in diameter or less, PM2.5 = particulate matter 2.5 microns or less in diameter

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 CalEEMod software version 2020.4.0 which incorporates current air emission data and standard inputs for a variety of projects.

Project construction is estimated to take 14 months, starting in April 2022. Construction activities include site preparation, grading, 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 months
- Grading: approximately two months
- Building Construction: approximately one year
- Paving: approximately one month
- Architectural Coating: approximately one month

Construction equipment were given by the applicant and used for analyzing project construction emissions. Table 4 contains a list of project construction equipment. 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 quantity of equipment used simulatenously 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. 2020.4.0)

Phase	Equipment Type	Quantity
Site Preparation	Excavator	1
	Rollers	1
	Rubber Tired Dozers	3
	Tractors/Loaders/Backhoes	4
Grading	Excavators	1
	Rollers	1
	Rubber Tired Dozers	1
	Tractors/Loaders/Backhoes	3
Building Construction	Forklifts	3
Paving	Pavers	2
	Paving Equipment	2
	Rollers	2
Architectural Coating	Air Compressors	1

Source: CalEEMod v. 2020.4.0 (Appendix A)

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. Trip generation rates were sourced from the Transportation Analysis prepared by Linscott, Law & Greenspan, Engineers (Linscott, Law & Greenspan, Engineers 2021).The trip generation rates in CalEEMod were adjusted to be consistent with Transportations Analysis' estimated 263 daily vehicle trip generation. Emissions attributed to energy use include 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.

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 (50 g/L for flat coatings and 100 g/L for traffic marking coating) as required by SDAPCD Rule 67.0.1.

The project's energy use would adhere to the latest 2019 Title 24 energy efficiency requirement The CalEEMod version 2020.4.0 incorporates the latest 2019 Title 24 energy efficiency requirements in the model.

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.

The proposed project would add 97 additional bedrooms for assisted living in the Lakeside Community Planning Area. The proposed project would be consistent with the General Plan land uses and SANDAG growth projections. Residents of the proposed project are expected to be existing residents in the region that would be relocated to the site, therefore the project would not conflict with the region's future employment and housing needs. This project is not a transportation project that would affect the region's transportation systems and should not increase transportation demands within the local area. Therefore, the project would not induce substantial population and would not conflict with or obstruct implementation of the RAQS.

4.2 Cumulatively Considerable Net Increase of Criteria Pollutants

Construction Impacts

Table 5 and Table 6 summarize maximum daily and annual emissions of pollutants on-site and off-site the project area and throughout project construction. On-site emissions are attributed to emissions occurring within the project area, such as the activity of construction equipment. Off-site emissions related to the project include vendor, hauling, and worker vehicle trips to and from the project site. 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. Therefore, project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment (O_3, PM_{10}, and $PM_{2.5}$) under an applicable federal or state ambient air quality standard. The project's air quality emissions would not exceed the County's screening level thresholds; therefore, as the thresholds were developed to protect the public health that align with ambient air quality standards, air quality impacts on public health would be less than significant, and no mitigation measures would be necessary.

Table 5 Maximum Daily Estimated Construction Emissions

Emissions Source	Maximum Emissions[1]					
	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Daily Construction Emissions (lbs/day)						
Site Preparation (4/1/2022-6/1/2022)						
Construction On-Site	4	37	25	<1	11	6
Construction Off-Site	<1	<1	1	<1	<1	<1
Grading (4/1/2022-6/1/2022)						
Construction On-Site	2	17	15	<1	4	2
Construction Off-Site	<1	<1	<1	<1	<1	<1
Building Construction (6/1/2022-6/1/2023)						
Construction On-Site	<1	3	3	<1	<1	<1
Construction Off-Site	<1	1	2	<1	1	<1
Total	**6**	**58**	**47**	**<1**	**16**	**9**
Building Construction (6/1/2022-6/1/2023)						
Construction On-Site	<1	3	3	<1	<1	<1
Construction Off-Site	<1	1	2	<1	1	<1
Paving (11/1/2022-12/1/2022)						
Construction On-Site	1	11	15	<1	1	1
Construction Off-Site	<1	<1	<1	<1	<1	<1
Architectural Coating (11/1/2022-12/1/2022)						
Construction On-Site	10	1	2	<1	<1	<1
Construction Off-Site	<1	<1	<1	<1	<1	<1
Total	**12**	**17**	**23**	**<1**	**2**	**1**
Maximum Daily Emissions[2]	12	58	46	<1	31	17
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.2020.4.0. See Appendix A for calculations. Some numbers may not add up due to rounding. 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.

VOC = volatile organic compounds, NO_X = nitrogen oxides, CO = carbon monoxide, SO_x = sulfur oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Lbs = pounds per day

[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

Emissions Source	Maximum Emissions[1]					
	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Annual Construction Emissions (tons/yr)						
Site Preparation						
Construction On-Site	<1	1	1	<1	<1	<1
Construction Off-Site	<1	<1	<1	<1	<1	<1
Total	**<1**	**1**	**1**	**<1**	**<1**	**<1**
Grading						
Construction On-Site	<1	<1	<1	<1	<1	<1
Construction Off-Site	<1	<1	<1	<1	<1	<1
Total	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Building Construction						
Construction On-Site	<1	<1	<1	<1	<1	<1
Construction Off-Site	<1	<1	<1	<1	<1	<1
Total	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Paving						
Construction On-Site	<1	<1	<1	<1	<1	<1
Construction Off-Site	<1	<1	<1	<1	<1	<1
Total	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Architectural Coating						
Construction On-Site	<1	<1	<1	<1	<1	<1
Construction Off-Site	<1	<1	<1	<1	<1	<1
Total	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Maximum Annual Emissions[2]	<1	2	2	<1	<1	<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.2020.4.0. See Appendix A for calculations. Site Preparation, Grading, Building Construction, Paving, 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.

VOC = volatile organic compounds, NO_x = nitrogen oxides, CO = carbon monoxide, SO_x = sulfur oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Yr = year

[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 duration of project construction (14 months). This would be a conservative analysis of construction emission impacts.

Operational Impacts

Operation of the project would generate criteria air pollutant emissions associated with area sources (e.g., architectural coatings, consumer products, and landscaping equipment), energy sources (i.e., use of natural gas for space and water heating), and mobile sources (i.e., vehicle trips to and from the project site). A traffic study by Linscott, Law, & Greenspan for the proposed project was consistent with CalEEMod trip generation defaults.

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	1	<1	8	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	1	1	7	<1	2	<1
Stationary Emissions	<1	<1	<1	<1	<1	<1
Project Total[2]	**2**	**1**	**15**	**<1**	**2**	**<1**
San Diego County Screening Level Thresholds	75	250	550	250	100	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
	Estimated Emissions (tons/yr))					
Emissions Source	**VOCs**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Area	<1	<1	1	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	<1	<1	1	<1	<1	<1
Stationary Emissions	<1	<1	<1	<1	<1	<1
Project Total[2]	**<1**	**<1**	**2**	**<1**	**<1**	**<1**
San Diego County Screening Level Thresholds	13.7	40	100	40	15	10
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.

VOC = volatile organic compounds, NO_X = nitrogen oxides, CO = carbon monoxide, SO_x = sulfur oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

lbs = pounds per day, yr = year

[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 SDAPCD measured a maximum 8-hour CO concentration of 1.4 parts per million (ppm) inn 2020 (SDAPCD 2021). CO concentrations were well below the federal standard 8-hour standard of 9 ppm.

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 three intersections in the vicinity of the project site (Linscott, Law & Greenspan 2021). The project would add 263 daily trips (which includes all project generated trips, including trucks), which include 19 AM peak hour and 26 PM peak hour trips Subsequent to the completion of the traffic study, the project size was reduced from 101 to 97 additional beds. Therefore, the analysis in this report reflects the 101 additional beds, which results in a conservative analysis (Linscott, Law & Greenspan 2021). 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)
E. Bradley Avenue/Sams Hill Road	B	C	B	C	N
E. Bradley Avenue/Project West Driveway	B	B	B	C	N
E. Bradley Avenue/Project East Driveway	DNE	DNE	B	B	N

[1] DNE = Does Not Exist

LOS = Level of Service

Source: Linscott Law & Greenspan, Engineers 2021

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(Linscott, Law & Greenspan 2021). 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)

Construction-related activities would result in short-term, project-generated emissions of diesel particulate matter (DPM) exhaust emissions from off-road, heavy-duty diesel equipment for site preparation grading, building construction, and other construction activities. DPM was identified as a toxic air contaminant (TAC) by CARB in 1998. The potential cancer risk from the inhalation of DPM (discussed in the following paragraphs) outweighs the potential non-cancer health impacts and is therefore the focus of this discussion (CARB 2017).

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction of the proposed project would occur over approximately 14 months. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the California Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments (HRA), which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period (assumed to be the approximate time that a person spends at a single household location). OEHHA recommends this risk be bracketed with nine-year and 70-year exposure periods and that HRA should be limited to the period/duration of activities associated with the project (OEHHA 2015).

The maximum on-site $PM_{2.5}$ emissions, which are used to represent DPM emissions for this analysis,[4] would occur during site preparation and grading activities. While site preparation and grading emissions represent the worst-case condition, such activities would only occur for approximately two months, which represents less than one percent of the typical health risk calculation periods of 9 years, 30 years, and 70 years. $PM_{2.5}$ emissions would decrease for the remaining construction period because construction activities such as building construction and paving would require less construction equipment. Therefore, given the aforementioned, DPM generated by project construction is not expected to create conditions where the probability that the Maximally Exposed Individual would contract cancer is greater than ten in one million or to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than one for the Maximally Exposed Individual.

Lastly, mobile emissions during project operations would primarily be composed of passenger and light-duty vehicles (55.4 percent) and light trucks (6.3 percent) accessing the proposed buildings and parking lot, as shown in Table 9 below. Approximately one 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 substantial 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.

The proposed project would have a 150 kilowatt diesel generator on-site, which would be permitted by the SDAPCD. The on-site generator would comply with SDAPCD guidelines and would be tested and maintained 52 hours per year and would be required by the permit to be below health risk thresholds. Additionally, the proposed project land use type is not typical of a TAC emitter and would not constitute a cancer risk to sensitive receivers. Therefore, construction and operation of the proposed buildings and parking lot would not generate significant amounts of TACs that would adversely impact sensitive receptors in the vicinity of the project site.

[4] It can be conservatively assumed that DPM emissions would be equivalent to $PM_{2.5}$ because $PM_{2.5}$ emissions make up 92 percent of total diesel off-road equipment (e.g., construction equipment) PM emissions based on SCAQMD guidance (SCAQMD 2015).

Table 9 CalEEMod Vehicle Fleet Mix

Vehicle Type	Percent Type
Light Auto	55.4%
Light Truck < 3,750 lbs	6.3%
Light Truck 3,751-5,750 lbs	18.1%
Med Truck 5,751-8,500 lbs	12.1%
Lite-Heavy Truck 8,501-10,000 lbs	2.4%
Lite-Heavy Truck 10,001-14,000 lbs	1.0%
Med-Heavy Truck 14,001-33,000 lbs	1.0%
Heavy-Heavy Truck 33,001-60,000 lbs	1.0%
Other Bus	<1.0%
Urban Bus	<1.0%
Motorcycle	3.0%
School Bus	<1.0%
Motor Home	1.0%
Total	**100.0%**

Source: CalEEMod v. 2020.4.0 (Appendix A)

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 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 the buildings and parking lot are not typically associated with objectionable odors. project

The sensitive receivers nearest to the project site are the mobile home residences approximately 125 feet to the north, and the multi-family residences approximately 15 to 65 feet to the east, south, and west. 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 State Route 67 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. 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 buildings and parking lot 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.

6 References

California Air Resources Board (CARB). 2016. Ambient Air Quality Standards. https://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed November 2021.

_____. 2017. California's 2017 Climate Change Scoping Plan. December 14, 2017. https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed November 2021.

_____. 2021. Top 4 Measurements and Days Above the Standard https://www.arb.ca.gov/adam/topfour/topfour1.php Accessed November 2021.

Fovell, Robert. 2002. The Santa Ana Winds. http://people.atmos.ucla.edu/fovell/ASother/mm5/SantaAna/winds.html. Accessed November 2021.

Linscott, Law & Greenspan. 2021. Transportation/Access Analysis Bradley Court Convalescent Center. July 16, 2021.

Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Available at: https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0. Accessed November 2021.

San Diego County Air Pollution Control District (SDAPCD). 2005. Measures to Reduce Particulate Matter in San Diego County. http://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/PM-Measures.pdf. Accessed November 2021.

_____. 2015. Fact Sheet: Smog in San Diego County. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Compliance/Fact%20Sheets/Fact%20Sheet-Smog%20in%20SD.pdf. Accessed November 2021.

_____. 2016. Regional Air Quality Strategy, December 2016. http://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2016%20RAQS.pdf. Accessed November 2021.

_____. 2019. Attainment Status. http://www.sandiegocounty.gov/content/sdc/apcd/en/air-quality-planning/attainment-status.html. Accessed November 2021.

_____. 2021. Annual Air Quality Monitoring Network Report. June 2021 https://www.sdapcd.org/content/dam/sdc/apcd/monitoring/2020_Network_Plan.pdf Accessed November 2021.

San Diego County. 2007. County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Air Quality. http://www.sandiegocounty.gov/content/dam/sdc/pds/ProjectPlanning/docs/AQ-Guidelines.pdf. Accessed November 2021.

_____. 2011a. San Diego County General Plan. https://www.sandiegocounty.gov/content/dam/sdc/pds/gpupdate/docs/GP/Cover-TOC-Vision.pdf. Accessed November 2021.

_____. 2011b. Lakeside Community Plan. https://www.sandiegocounty.gov/content/dam/sdc/pds/docs/CP/Lakeside_CP.pdf. Accessed November 2021.

South Coast Air Quality Management District (SCAQMD). 2015.Final Report Multiple Air Toxics Exposure Study in the South Coast Air Basin. http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf. Accessed November 2021.

United States Environmental Protection Agency (USEPA). 2021a. Carbon Monoxide (CO) Pollution in Outdoor Air. https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution . Accessed November 2021.

_____. 2021b. Health Effects of Ozone Pollution. https://www.epa.gov/ozone-pollution/health-effects-ozone-pollution. Accessed November 2021.

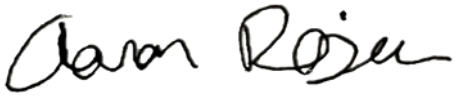
_____. 2021c. Nitrogen Dioxide (NO_2) Pollution. https://www.epa.gov/no2-pollution/basic-information-about-no2 . Accessed November 2021.

_____. 2021d. Particulate Matter (PM) Pollution. https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#effects. Accessed November 2021.

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.

The report was prepared by Aaron Rojas of Rincon Consultants, Inc. and reviewed by Lynette Leighton of Rincon Consultants, Inc. for submittal in December 2021.



12/1/2021

Aaron Rojas, Environmental Planner — Date

12/1/2021

Lynette Leighton, County-Approved Air Quality Consultant — Date

Appendix A

CalEEMod Outputs