APPENDIX D

AIR QUALITY, GREENHOUSE GAS EMISSIONS, AND ENERGY REPORT

Air Quality, Greenhouse Gas Emissions, and Energy Report

Gilroy Sports Park Master Plan Phase III Amendments

December 11, 2019

Prepared by

EMC Planning Group

AIR QUALITY, GREENHOUSE GAS EMISSIONS, AND ENERGY REPORT

THE GILROY SPORTS PARK MASTER PLAN PHASE III AMENDMENTS

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1.0 Introduction

This air quality, greenhouse gas emissions, and energy report focuses on the criteria air pollutant emissions, greenhouse gas emissions, and energy demand associated with the construction and operation of an ice hockey facility in unincorporated Santa Clara County, California.

1.1 Project Location and Setting

The approximately 78-acre Gilroy Sports Park is located in unincorporated Santa Clara County south of downtown Gilroy, outside of the city limits and urban service area, but within the City's 20-year planning boundary. Figure 1-1, Location Map, presents the regional location of the Gilroy Sports Park. The Gilroy Sports Park is owned and operated by the City of Gilroy. The Gilroy Sports Park site occupies three assessor parcels: 808-21-026, -028 and -030. Current uses and improvements consist of three little league baseball diamonds, with lights, on approximately 11 acres; playground; restrooms; maintenance area; utility infrastructure; parking lot; and a landscaped entrance drive. The remaining acres within the Gilroy Sports Park are used for agricultural row-crop production on an interim basis until park facilities are developed.

The proposed project is located within the Phase III area ("project site") as delineated in the Master Plan. Figure 1-2, Master Plan Phases, shows the location of the project site within the Gilroy Sports Park. The project site is approximately 9.1 acres, and is located directly south of the Gilroy Sports Park entrance driveway.

The Gilroy Sports Park is bound by residential uses to the north; agricultural land, Monterey Road and the rural residences along Monterey Frontage Road to the east; and by Uvas Creek to the south and west. Visitor-serving commercial and self-storage facility uses are to the east beyond Monterey Road; residential and agricultural uses are to the south and west beyond Uvas Creek. Figure 1-3, Aerial Photograph, presents the Gilroy Sports Park boundary, project site boundary, and surrounding land uses.

The project site is within the Gilroy Sports Park. Immediately north of the project site are the entry driveway to the Gilroy Sports Park (Master Plan Phase I improvements) and parking lots and baseball fields (Master Plan Phase II improvements). To the west of the project site

are agricultural fields (planned for Master Plan Phase V improvements). To the east are agricultural fields and rural residences along Monterey Frontage Road. To the southeast is a storm drainage pond (part of the Master Plan Phase I improvements). To the south is Uvas Creek.

1.2 PROJECT DESCRIPTION

The proposed project is a Master Plan update, and construction and operations of a permanent structure and related parking infrastructure for an indoor recreational facility focused on ice hockey. This report focuses on project-specific effects of construction and operation of the facility.

Master Plan Amendments

Portions of the Master Plan relating to the Phase III area would be updated with revised text and graphics to reflect more specific plans for the commercial recreation component and elimination of a sports field. The conceptual description of the commercial recreation use within Phase III would be replaced with more focused information. The conceptual tent structure identified in the Master Plan (size not stated in the Master Plan, but measured at approximately 41,000 square feet) would be replaced by a permanent structure (again, size not stated in the Master Plan, but proposed to be 100,000 square feet). Figure 1-4, Conceptual Master Plan Phase III Site Plan, presents the proposed new design for Phase III of the Master Plan.

Proposed Phase III Improvements

The proposed commercial recreation building would have an approximate 70,000 square foot building footprint and approximate floor area of 100,000 square feet. The facility would be approximately 30 feet tall with two interior levels (70,000 square feet on the lower level and 30,000 square feet on the upper level). The facility would be designed to a LEED Silver certification (or higher) building standard. Construction is anticipated to begin in October 2020. The estimated construction timeline is 12-16 months. The proposed facility is anticipated to be operational in 2022.

Level #1 Rink Level (70,000 square feet)

This level would consist of two National Hockey League (NHL) sized ice rinks with seating capacity of 150-200 seats per rink, public locker rooms with restrooms and showers; a welcome/administration desk; skate rental area; food concession area; merchandise/retail space; event/administrative office(s); and facility support spaces such as main electrical and information technology rooms, ice making equipment for rinks, boiler room, water entry room, fire pump room, parking for a Zamboni ice grooming machine, and storage.

Level #2 Mezzanine (30,000 square feet)

This level would be occupied by a viewing area for the ice rinks (approximately 100-150 seats per rink), physical fitness/training space, small dance/multipurpose room, conference rooms for community use, a bar/restaurant that overlooks the rinks below, facility support areas and storage.

Operational Information

The City of Gilroy would develop and own the indoor facility and the facility would be operated by the Sharks Sports & Entertainment LLC. Buildout of the remaining phases of the Master Plan would proceed consistent with the approved Master Plan.

Year-round ice programs that would be offered to the public include ice hockey, figure skating, broomball, curling, speed skating, and ice dancing, as well as recreational skating. The facility would also host various corporate and private events and birthday parties. The facility would offer a number of off-ice programming such as fitness training, dance, and yoga. The hours of operation would be 5:30 am to 1:00 am daily, 365 days per year. It is anticipated this facility would have 500,000 visitors/participants annually with the majority of its participants under the age of 18. No collegiate or NHL training or competition would occur at this facility.

Initial estimates for the number of parking spaces that will be needed to accommodate peak operations of the indoor facility range from about 250-300; however, the conceptual site plan includes an additional 87 parking spaces for a total of 387 spaces. The site would provide opportunities for shared parking with other Gilroy Sports Park facilities. The traffic and parking flow for a facility such as this is typically different than a traditional business. Peak parking and travel occur on the weekends. Peak weekday levels usually occur from 4:00 pm to 10:00 pm.

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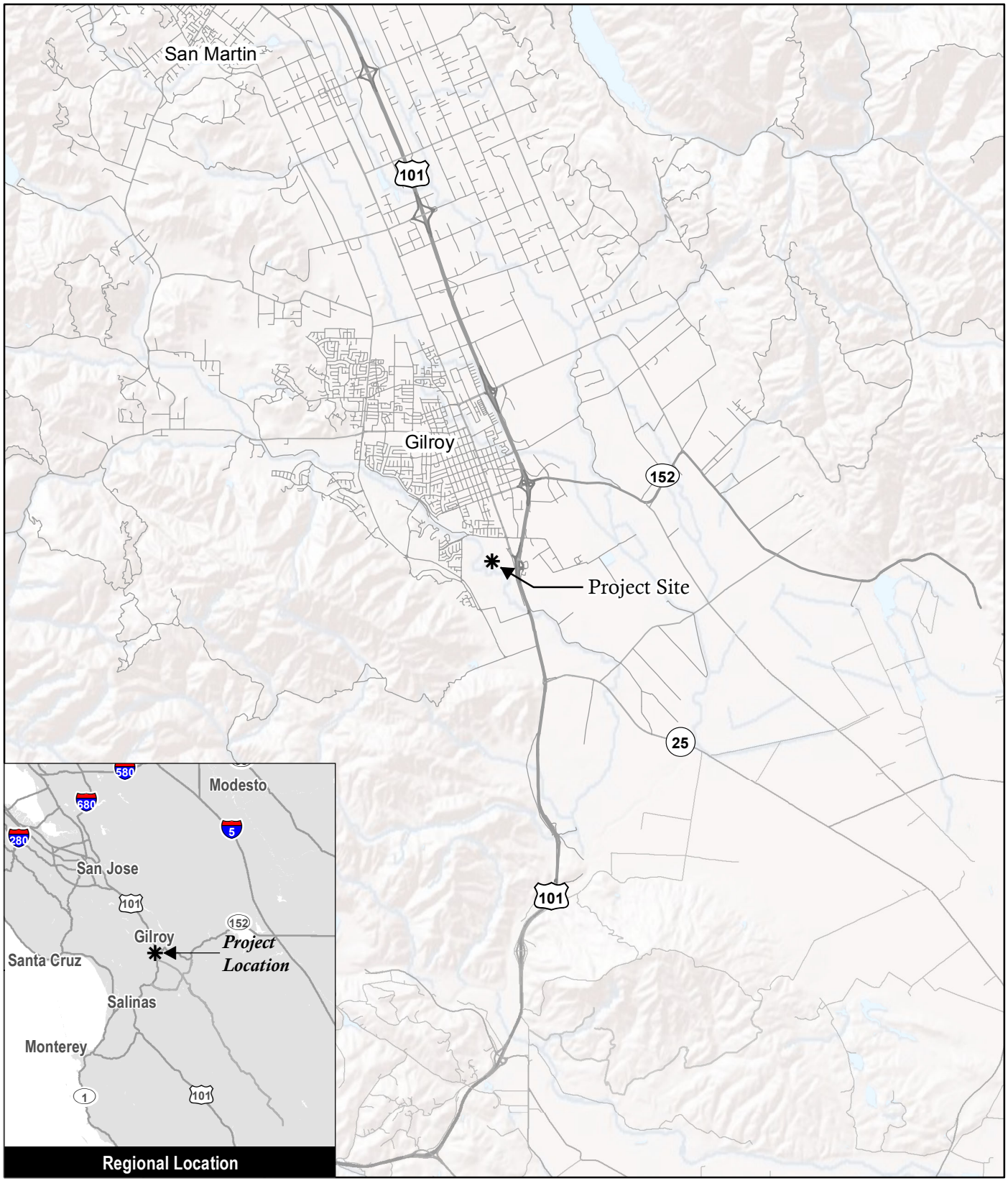

Source: ESRI 2019

Figure 1-1

Location Map

Gilroy Sports Park Master Plan Phase III Amendments
Air Quality, Greenhouse Gas Emissions, and Energy Report

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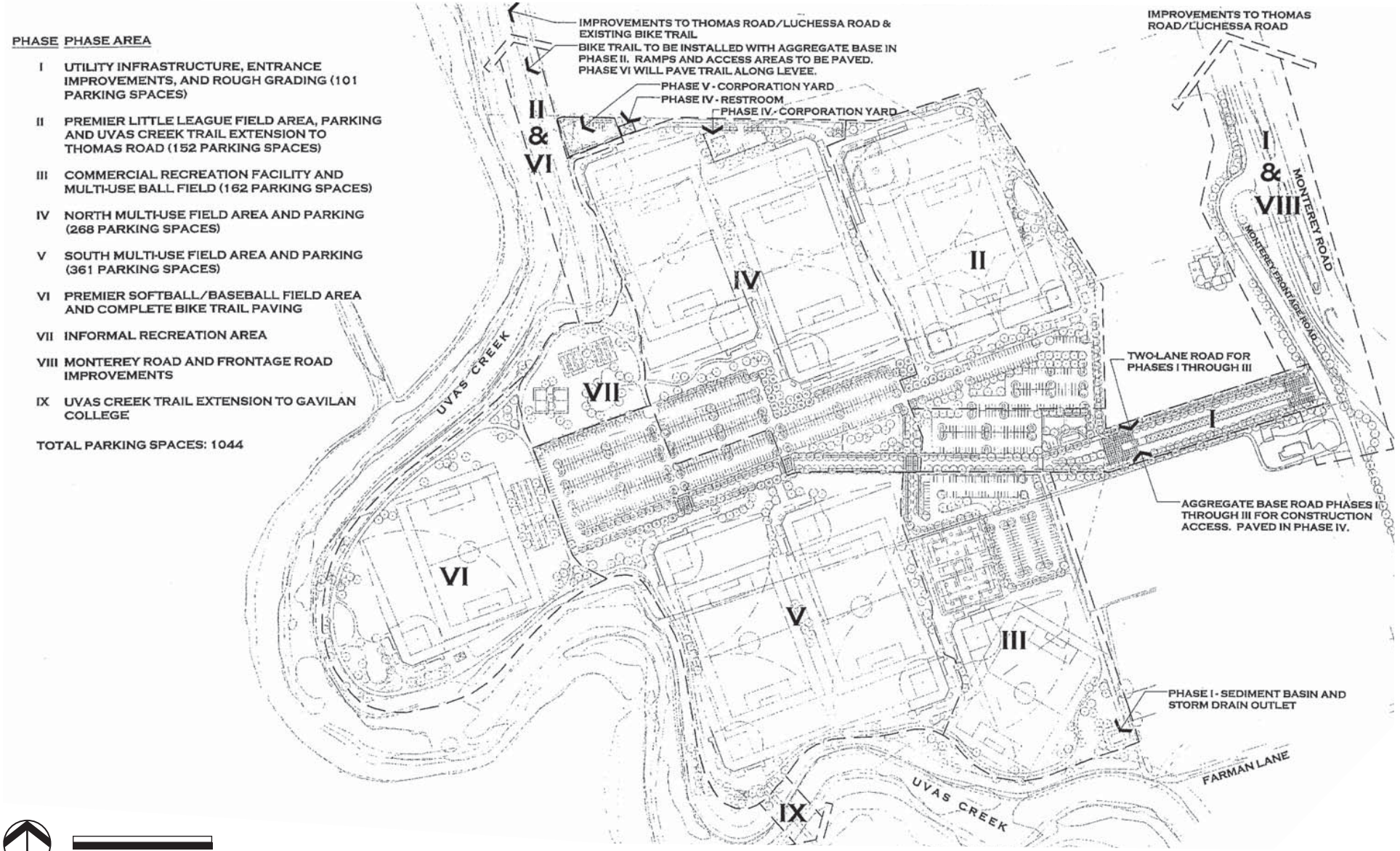

Source: The Beals Group Inc. 1999

Figure 1-2

Existing Master Plan Phasing Plan

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Source: ESRI 2019, Santa Clara County GIS 2017

Figure 1-3

Aerial Photograph

Gilroy Sports Park Master Plan Phase III Amendments
Air Quality, Greenhouse Gas Emissions, and Energy Report

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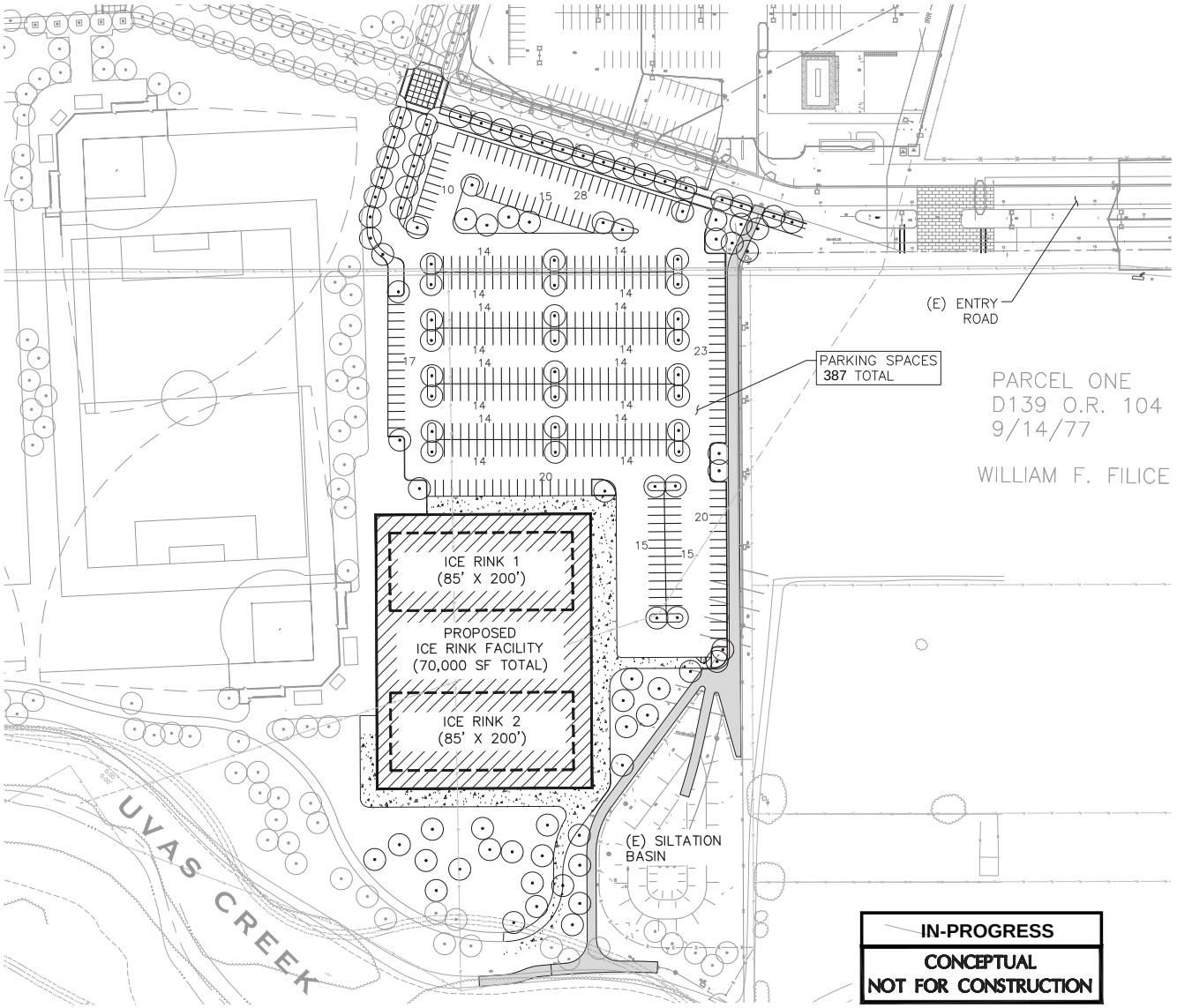

Source: Harris and Associates 2019

Figure 1-4

Conceptual Master Plan Phase III Site Plan

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2.0
Air Quality

This section includes a discussion of the regional climate and topography, common criteria air pollutants, toxic air contaminants, and applicable regulations, and provides an evaluation of criteria air pollutant emissions that could be generated during construction and operation of the proposed project.

2.1 Environmental Setting

Regional Climate and Topography

The project site is located within the San Francisco Bay Area Air Basin ("air basin"). The air basin encompasses all of Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa counties, and the southern portions of Solano and Sonoma counties.

The air basin is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits at San Francisco Bay, resulting in a western coast gap, the Golden Gate, and an eastern coast gap, the Carquinez Strait, which allows air to flow in and out of the air basin and the Central Valley to the east.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high pressure cell is centered over the northeastern Pacific Ocean resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band resulting in condensation and the presence of fog and stratus clouds along the Northern California coast.

In the winter, the Pacific high-pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

Criteria Air Pollutants and Their Effects on Human Health

The six most common and widespread air pollutants of concern, or "criteria pollutants," are ground level ozone, nitrogen oxides, particulate matter, carbon monoxide, sulfur dioxide, and lead. In addition, reactive organic gases are a key contributor to the criteria air pollutants because they react with other substances to form ground level ozone. The common properties, sources, and related health and environmental effects of these pollutants are summarized in Table 2-1, Common Criteria Air Pollutants.

Health effects of criteria air pollutants include, but are not limited to, asthma, bronchitis, chest pain, coughing, throat irritation, and airway inflammation. Currently available modeling tools are not equipped to provide a meaningful analysis of the correlation between an individual development project's criteria air pollutant emissions and specific human health impacts. The air district's thresholds of significance for criteria air pollutants are not intended to be indicative of any localized human health impact that an individual project may have. The CEQA air quality analysis for criteria air pollutants is not really a localized, project-level impact analysis but one of regional, cumulative impacts. For these reasons, it is not the norm for CEQA practitioners to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the CEQA process.

Ozone (O_3)

Ground-level ozone is created by complex chemical reactions between nitrogen oxides and reactive organic gases in the presence of sunlight. Since ground-level ozone is not emitted directly into the atmosphere, but is formed because of photochemical reactions, it is considered a secondary pollutant.

Ozone is a strong irritant that attacks the respiratory system, leading to the damage of lung tissue. Asthma, bronchitis, and other respiratory ailments, as well as cardiovascular diseases, are aggravated by exposure to ozone. A healthy person exposed to high concentrations may become nauseated or dizzy, may develop a headache or cough, or may experience a burning sensation in the chest. Research has shown that exposure to ozone damages the alveoli (the individual air sacs in the lung where the exchange of oxygen and carbon dioxide between the air and blood takes place). Research has shown that ozone also damages vegetation.

If project-generated concentrations of reactive organic gases and/or nitrogen oxides exceed the applicable thresholds of significance, concentrations of ground level ozone resulting from these pollutants could potentially result in significant, cumulative adverse human health impacts.

Reactive Organic Gases (ROG)

Reactive organic gases are emitted from a variety of sources, including liquid and solid fuel combustion, evaporation of organic solvents, and waste disposal.

Table 2-1 Common Criteria Air Pollutants

Pollutant	Properties	Major Sources	Related Health & Environmental Effects
Ozone (O_3)	Ground level ozone is not emitted directly into the air. It results from chemical reactions between nitrogen oxides (NOx) and reactive organic gases (ROG) in presence of sunlight.	▪ Automobiles; ▪ Industrial facilities; ▪ Gasoline vapors; ▪ Chemical solvents; ▪ Electric utilities.	▪ Chest pain, coughing, throat irritation, and airway inflammation ▪ Worsens bronchitis, emphysema, and asthma. ▪ Affects sensitive vegetation and ecosystems.
Nitrogen oxides (NO_X)	Group of highly reactive gases including nitrogen dioxide (NO_2).	▪ Combustion of fuel; ▪ Automobiles; ▪ Power plant; ▪ Off-road Equipment.	▪ Irritate respiratory system / increase respiratory infections ▪ Development of asthma ▪ Forms acid rain – harms sensitive ecosystems ▪ Creates hazy air ▪ Contributes to nutrient pollution in coastal waters
Respirable and Fine Particulate Matter (PM_{10}) ($PM_{2.5}$)	Mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, soot, dirt, or smoke can be seen with the naked eye. Others are so small that they can only be detected with an electron microscope.	▪ Automobiles; ▪ Power Plants; ▪ Construction sites; ▪ Tilled farm fields; ▪ Unpaved roads; ▪ Smokestacks.	▪ Aggravated asthma; ▪ Irritation of the airways, coughing, and difficulty breathing; ▪ Decreased lung function; ▪ Premature death; ▪ Reduced visibility.
Carbon Monoxide (CO)	Colorless, odorless gas released when something is burned.	▪ Fuel combustion; ▪ Industrial processes; ▪ Highly congested traffic.	▪ Chest pain for those with heart disease; ▪ Vision problems; ▪ Dizziness, unconsciousness, and death (at high levels).
Sulfur Oxides (SO_X)	In the entire group of sulfur oxides (SO_X), sulfur dioxide (SO_2) is the component of the greatest concern.	▪ Fuel combustion; ▪ Industrial processes; ▪ Locomotives, ships, and other heavy equipment; ▪ Volcanoes.	▪ Makes breathing difficult; ▪ Worsens asthma; ▪ Contributes to acid rain; ▪ Reduced visibility; ▪ Damages statues and monuments.
Lead (Pb)	Lead is a naturally occurring element found in small amounts in the earth's crust.	▪ Ore and metal processing; ▪ Leaded aviation fuel; ▪ Waste Incinerators; ▪ Utilities; ▪ Lead-acid battery manufacturers.	▪ High blood pressure and heart disease in adults; ▪ Behavioral problems, learning deficits, and lowered IQ in infants and young children; ▪ Decreased plant and animal growth; ▪ Neurological effects in vertebrates.

SOURCE: United States Environmental Protection Agency 2018

Nitrogen Oxides (NO_X)

Most nitrogen oxides are created during combustion of fuels. Nitrogen oxides are a major contributor to ozone formation. Nitrogen dioxide is a reddish-brown gas that can irritate the lungs and can cause breathing difficulties at high concentrations. Like ozone, nitrogen dioxide is not directly emitted, but is formed through a reaction between nitric oxides and atmospheric oxygen. Nitrogen dioxide also contributes to the formation of particulate matter (see discussion below). Nitrogen dioxide concentrations in the air basin have been well below ambient air quality standards; therefore, nitrogen dioxide concentrations from land use projects are not a concern.

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

Particulate matter refers to a wide range of solid or liquid particles in the atmosphere, including smoke, dust, aerosols, and metallic oxides. Particulate matter with diameter of 10 micrometers or less is referred to as PM_{10}. $PM_{2.5}$ includes a subgroup of finer particles that have a diameter of 2.5 micrometers or less. Particulate matter is directly emitted to the atmosphere as a byproduct of fuel combustion, wind erosion of soil and unpaved roads, and from construction or agricultural operations. Small particles are also created in the atmosphere through chemical reactions. Approximately 64 percent of fugitive dust is respirable particulate matter. Minimal grading typically generates about 10 pounds per day per acre on average while excavation and earthmoving activities typically generate about 38 pounds per day per acre.

Although particles greater than 10 micrometers in diameter can cause irritation in the nose, throat, and bronchial tubes, natural mechanisms remove much of these particles. Particles less than 10 micrometers in diameter are able to pass through the body's natural defenses and the mucous membranes of the upper respiratory tract and enter into the lungs. The particles can damage the alveoli. The particles may also carry carcinogens and other toxic compounds, which can adhere to the particle surfaces and enter the lungs.

Carbon Monoxide (CO)

Carbon monoxide is a component of motor vehicle exhaust, which contributes about 56 percent of all carbon monoxide emissions nationwide. Other non-road engines and vehicles (such as construction equipment and boats) contribute about 22 percent of all carbon monoxide emissions nationwide. Carbon monoxide can cause harmful health effects by reducing oxygen delivery to the body's organs (like the heart and brain) and tissues. Carbon monoxide contributes to the formation of ground-level ozone.

Higher levels of carbon monoxide generally occur in areas with heavy traffic congestion. In cities, 85 to 95 percent of all carbon monoxide emissions may come from motor vehicle exhaust. Concentration of carbon monoxide is a direct function of vehicle idling time and, thus, traffic flow conditions. Carbon monoxide emissions movement is extremely limited; it disperses rapidly from the location of the source under normal meteorological conditions.

Under certain meteorological conditions, however, carbon monoxide concentrations close to a congested roadway or intersection may reach unhealthy levels, affecting local sensitive receptors (residents, school children, hospital patients, the elderly, etc.). Emissions thresholds established for carbon monoxide apply to direct or stationary sources.

Typically, high carbon monoxide concentrations are associated with roadways or intersections operating at unacceptable levels of service. Congested intersections with high volumes of traffic could cause carbon monoxide "hot spots," where localized high concentrations of carbon monoxide occur.

Sulfur Oxides (SO_X)

Sulfur dioxide (SO_2) is the component of greatest concern and is used as the indicator for the larger group of gaseous sulfur oxides (SO_X). Emissions that lead to high concentrations of SO_2 generally also lead to the formation of other SO_X. Sulfur dioxide is a colorless acid gas with a pungent odor. SO_2 is produced by the combustion of sulfur-containing fuels, such as oil, coal and diesel. Sulfur dioxide dissolves in water vapor to form acid, and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and their environment. Health effects of sulfur dioxide include damage to lung tissue and increased risk of acute and chronic respiratory disease.

Lead (Pb)

Lead is a metal found naturally in the environment as well as in manufactured products. Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. Emissions of lead from the transportation sector and levels of lead in the air decreased 98 percent between 1980 and 2014, following regulatory efforts to ultimately remove lead from gasoline. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Toxic Air Contaminants and their Effects on Human Health

Toxic air contaminants are pollutants that may be expected to result in an increase in mortality or serious illness or may pose a present or potential hazard to human health. Health effects include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. Toxic air contaminants can be classified as either carcinogens or non-carcinogens.

Diesel Emissions

Diesel exhaust is the predominant toxic air contaminant in urban air and is estimated to represent about two-thirds of the cancer risk from toxic air contaminants. Diesel engines emit

a complex mix of pollutants including nitrogen oxides, particulate matter, and toxic air contaminants. The most visible constituents of diesel exhaust are very small carbon particles or soot, known as diesel particulate matter. Diesel exhaust also contains over 40 cancer-causing substances, most of which are readily adsorbed on the soot particles. Among the toxic air contaminants contained in diesel exhaust are dioxin, lead, polycyclic organic matter, and acrolein. Diesel engine emissions are responsible for about 70 percent of California's estimated cancer risk attributable to toxic air contaminants (California Air Resources Board 2019a). As a significant fraction of particulate pollution, diesel particulate matter contributes to numerous health impacts, including increased hospital admissions, particularly for heart disease, but also for respiratory illness, and even premature death.

Diesel exhaust is especially common during the grading stage of construction (when most of the heavy equipment is used), and adjacent to heavily trafficked roadways where diesel trucks are common. The United States Environmental Protection Agency ("EPA") regulates diesel engine design and fuel composition at the federal level, and has implemented a series of measures since 1993 to reduce nitrogen oxides and particulate emissions from off-road and highway diesel equipment. Before EPA began regulating sulfur in diesel, diesel fuel contained as much as 5,000 parts per million (ppm) of sulfur. In 2006, EPA introduced stringent regulations to lower the amount of sulfur in diesel fuels to 15 ppm (United States Environmental Protection Agency 2019a). This fuel is known as ultra-low sulfur diesel.

EPA Tier 1 non-road diesel engine standards were introduced in 1996, Tier 2 in 2001, Tier 3 in 2006, with final Tier 4 in 2014 (DieselNet 2017). Table 2-2, Typical Non-road Engine Emissions Standards, compares emissions standards for NO_X and particulate matter from non-road engine Tier 1 through Tier 4 for typical engine sizes.

Table 2-2 Typical Non-road Engine Emissions Standards

Engine Tier and Year Introduced	NO_X Emissions[1]			Particulate Emissions[1]		
	100-175 HP	175-300 HP	300-600 HP	100-175 HP	175-300 HP	300-600 HP
Tier 1 (1996)	6.90	6.90	6.90	--	0.40	0.40
Tier 2 (2001)	--	--	--	0.22	0.15	0.15
Tier 3 (2006)	--	--	--	-- †[2]	-- †[2]	-- †[2]
Tier 4 (2014)	0.30	0.30	0.30	0.015	0.015	0.015

SOURCE: DieselNet 2017
NOTES:
1. Expressed in g/bhp-hr, where g/bhp-hr stands for grams per brake horsepower-hour.
2. † - Not adopted, engines must meet Tier 2 PM standard.

As illustrated in the table, emissions for these pollutants have decreased significantly for construction equipment manufactured over the past 20 years, and especially for construction equipment manufactured in the past five years.

In California, non-road equipment fleets can retain older equipment, but fleets must meet averaged emissions limits, new equipment must be Tier 3 or better after January 2018 (for large and medium fleets) or January 2023 (for small fleets), and over time the older equipment must be fitted with particulate filters. Large and medium fleets have increasingly strict fleet compliance targets through 2023 and small fleets through 2029. A small fleet has total horse power of 2,500 or less, and a medium fleet has total horsepower of between 2,500 and 5,000. Owners or operators of portable engines and other types of equipment can register their units under the California Air Resources Board's statewide Portable Equipment Registration Program in order to operate their equipment throughout California without having to obtain individual permits from local air districts (California Air Resources Board 2019b).

Construction Emissions

Emissions generated during construction are "short-term" in the sense that they would be limited to the actual periods of site development and construction. Short-term construction emissions are typically generated by the use of heavy equipment, the transport of materials, and construction employee commute trips. Construction-related emissions consist primarily of reactive organic gasses, nitrogen oxides, diesel particulate matter, respirable and fine particulate matter, and carbon monoxide. Emissions of reactive organic gasses, nitrogen oxides, diesel particulate matter, and carbon monoxide are generated primarily by the operation of gas and diesel-powered motor vehicles, asphalt paving activities, and the application of architectural coatings. Respirable and fine particulate matter emissions are generated primarily by wind erosion of exposed graded surfaces.

Sensitive Receptors

Although air pollution can affect all segments of the population, certain groups are more susceptible to its adverse effects than others. Children, the elderly, and the chronically or acutely ill are the most sensitive population groups. These sensitive receptors are commonly associated with specific land uses such as residential areas, schools, retirement homes, and hospitals. In addition, certain air pollutants, such as carbon monoxide, only have significant effects if they directly affect a sensitive population.

The nearest sensitive receptors are single-family homes, the nearest of which is located approximately 500 feet to the east of the project site.

2.2 REGULATORY SETTING

Federal

United States Environmental Protection Agency

The EPA was established on December 2, 1970 to create a single agency that covered several agency concerns: federal research, monitoring, standard-setting and enforcement. The purpose of the EPA is to protect the overall health of humans and the environment. The EPA does this by safeguarding all Americans from the hazardous risks in the environment where they live and work. Environmental safety is one of the primary concerns of U.S. policies and the following are commonly used to establish environmental policy: natural resources, human health, economic growth, energy, transportation, agriculture, industry, and international trade.

Federal Clean Air Act

Air quality is regulated on the federal level. The Clean Air Act, adopted in 1970 and amended in 1990, set federal standards for air quality.

The federal Clean Air Act required the EPA to set National Ambient Air Quality Standards for several air pollutants on the basis of human health and welfare criteria. The Clean Air Act also set deadlines for the attainment of these standards. The Clean Air Act established two types of national air standards: primary and secondary standards. Primary standards set limits to protect public health, including the health of sensitive persons such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. Historically, air quality laws and regulations have divided air pollutants into two broad categories of airborne pollutants: “criteria pollutants” and “toxic air contaminants.”

In general, the Clean Air Act creates a partnership between state and federal governments for implementation of the Clean Air Act provisions. The federal Clean Air Act requires states to prepare an air quality control plan known as a State Implementation Plan. California’s State Implementation Plan contains the strategies and control measures that California will use to attain the National Ambient Air Quality Standards. If, when reviewing the State Implementation Plan for conformity with Clean Air Act Amendments mandates, the EPA determines a State Implementation Plan to be inadequate, EPA may prepare a Federal Implementation Plan for the non-attainment area and may impose additional control measures.

National Ambient Air Quality Standards

Ambient air quality is described in terms of compliance with the state and national standards. State standards are discussed below. In general, criteria pollutants are pervasive constituents, such as those emitted in vast quantities by the combustion of fossil fuels. Both

the state and federal governments have developed ambient air quality standards for the most prevalent pollutants, which include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter, and fine particulate matter. Table 2-3, National and California Ambient Air Quality Standards, lists state and federal ambient air quality standards for common air pollutants.

Table 2-3 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards[1]				California Standards[2]	
		Primary[3,4]		Secondary[3,5]		Concentration[3]	
		ppm	µg/m³	ppm	µg/m³	ppm	µg/m³
Ozone[6]	1 Hour	-	-	-	-	0.09	180
	8 Hour	0.07	137	0.07	137	0.07	137
PM_{10}[7]	24 Hour	-	150	-	150	-	50
	Annual	-	-	-	-	-	20
$PM_{2.5}$[7]	24 Hour	-	35	-	35	-	-
	Annual	-	12	-	15	-	12
Carbon Monoxide (CO)	8 Hour	9	10	-	-	9.0	10
	1 Hour	35	40	-	-	20.0	23
Nitrogen Dioxide (NO_2)[8]	Annual	0.053	100	0.053	100	0.03	57
	1 Hour	0.10	188	-	-	0.18	339
Sulfur Dioxide (SO_2)[9]	Annual	0.03	See note 9	-	-	-	-
	24 Hour	0.14	See note 9	-	-	0.04	105
	3 Hour	-	-	0.5	1,300	-	-
	1 Hour	0.075	196	-	-	0.25	655
Lead[10,11]	30 Day Average	-	-	-	-	-	1.5
	Rolling 3-month Average	-	0.15	-	0.15	-	-
	Calendar Quarter	See note 10	1.5	See note 10	1.5	-	-
Visibility Reducing Particles[12]	8 Hour	No Federal Standards				See note 12	
Sulfates	24 Hour					-	25
Hydrogen Sulfide	1 Hour					0.03	42
Vinyl Chloride[10]	24 Hour					0.01	26

SOURCE: California Air Resources Board 2016

NOTES:

1. National standards (other than ozone, particulate matter, and those based on annual averages or 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 EPA for further clarification and current federal policies.
2. California standards for ozone, carbon monoxide, 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.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
6. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
7. 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.
8. 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.
9. 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.
10. California Air Resources Board 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.
11. 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 non-attainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
12. In 1989, the California Air Resources Board 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.

National Emissions Standards for Hazardous Air Pollutants are emissions standards set by the EPA for an air pollutant not covered by National Ambient Air Quality Standards that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology.

State

California Air Resources Board

The federal Clean Air Act gives states primary responsibility for directly monitoring, controlling, and preventing air pollution. The California Air Resources Board is responsible for coordination and oversight of federal, state, and local air pollution control programs in California and for implementing the requirements of the federal Clean Air Act and California Clean Air Act. The duties of California Air Resources Board include coordinating air quality attainment efforts, setting standards, conducting research, and creating solutions to air pollution. The California Air Resources Board, which is a state agency located within the California Environmental Protection Agency, oversees regional or local air quality management or air pollution control districts that are charged with developing attainment plans for the areas over which they have jurisdiction. The California Air Resources Board grants these regional or local air districts explicit statutory authority to adopt indirect source regulations and transportation control measures, including measures to encourage the use of ridesharing, flexible work hours, or other measures that reduce the number or length of vehicle trips.

Air Quality Management Plans

The federal Clean Air Act requires areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans. State Implementation Plans are comprehensive plans that describe how an area will attain national ambient air quality standards. State Implementation Plans are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. California grants air districts explicit statutory authority to adopt indirect source regulations and transportation control measures, including measures to encourage the use of ridesharing, flexible work hours, or other measures that reduce the number or length of vehicle trips. Local air districts prepare State Implementation Plan elements and submit them to the California Air Resources Board for review and approval. The California Air Resources Board forwards State Implementation Plan revisions to the EPA for approval and publication in the Federal Register.

California Air Toxics Program

The California Air Resources Board created a statewide air toxic program in the 1980s, and soon thereafter was the creation of the Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807). The Toxic Air Contaminant Identification and Control Act established the California Air Toxic Program that was designed to lower all exposure to air pollutants. The Air Toxics “Hot Spots” Information and Assessment Act (AB 2588) adds on to AB 1807 by demanding an inventory for all air pollutants, a system where notices are provided to those

who are unprotected by the air pollutant, and plans to lower these health risks. AB 1807 required the California Air Resources Board to implement standards for the ranking and control of the air pollutants. AB 1807 also requires the California Air Resources Board to use the data within the AB 2588 program (California Air Resources Board 2017).

California Ambient Air Quality Standards

The California Ambient Air Quality Standards were established in 1959 by the California Department of Public Health to set air quality standards and controls for vehicle emissions. These standards were developed based on laborious peer reviewed scientific literature. The Office of Environmental Health Hazard Assessment reviews and updates the standards used today. A document called the *Initial Statement of Reasons* is a compilation of Office of Environmental Health Hazard Assessment recommendations and the previous review of literature. Updates are released for public review by the Air Quality Advisory Committee, which provides written comments on the draft Initial Statement of Reasons. Once the comments are addressed, the revised Initial Statement of Reasons is released for a public comment period of 45 days and then sent to a scheduled California Air Resources Board meeting.

The California ambient air quality standards are often stricter than the national ambient air quality standards (refer to Table 2-3, National and California Ambient Air Quality Standards). When state thresholds are exceeded at regional monitoring stations, an "attainment plan" must be prepared that outlines how an air quality district will achieve compliance with the state standards.

Regional/Local

Bay Area Air Quality Management District

The Bay Area Air Quality Management District ("air district") is the agency with primary responsibility for assuring that federal and state ambient air quality standards are attained and maintained in the air basin. The air district is charged with regulatory authority over stationary sources of air emissions, monitoring air quality within the air basin, and preparing an air quality management plan to maintain or improve air quality in the air basin. The air district has published comprehensive guidance on evaluating, determining significance of, and mitigating air quality impacts of projects and plans. The guidance is contained in the *2017 CEQA Air Quality Guidelines* ("2017 CEQA Guidelines").

Air Basin Attainment Status

In accordance with the Clean Air Act, the California Air Resources Board is required to designate regions of the state as attainment, non-attainment, or unclassified with regard to that region's compliance with criteria air pollutants standards. An "attainment" designation for a region signifies that pollutant concentrations do not violate the standard for that

pollutant in that region. A "non-attainment" designation indicates that a pollutant concentration violated the standard at least once. An "unclassified" designation signifies that available data does not support either an attainment or non-attainment status. The air basin is currently designated as a non-attainment area for state and national ozone standards, for state and national fine particulate matter ($PM_{2.5}$) standards, and state respirable particulate matter (PM_{10}) standards. With respect to national PM_{10} standards, the air basin is unclassified. Table 2-4, San Francisco Bay Area Air Basin Attainment Status, identifies the current status within the air basin for each criteria pollutant.

Table 2-4 San Francisco Bay Area Air Basin Attainment Status

Pollutant	State Standards	National Standards
Ozone (O_3)	Non-attainment	Non-attainment
Respirable Particulate Matter (PM_{10})	Non-attainment	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Non-attainment	Non-attainment[1]
Carbon Monoxide (CO)	Attainment	Unclassified/ Attainment
Nitrogen Dioxide (NO_2)	Attainment	Unclassified/ Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Attainment	-

SOURCE: Bay Area Air Quality Management District 2017a

NOTE:

1. On January 9, 2013, U.S. EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This U.S. EPA rule suspends key State Implementation Plan requirements as long as monitoring data continues to show that the air district attains the standard. Despite this U.S. EPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until such time as the air district submits a "re-designation request" and a "maintenance plan" to U.S. EPA and U.S. EPA approves the proposed re-designation.

The air district is delegated with the responsibility at the local level to implement both federal and state mandates for improving air quality in the air basin through an air quality plan. When thresholds are exceeded at regional monitoring stations on consecutive accounts, an attainment plan must be prepared that outlines how an air district will achieve compliance. Generally, these plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods. The air district periodically prepares and updates plans in order to attain state and national air quality standards, comply with quality planning requirements, and achieve the goal of clean and healthful air. These plans also report on progress in improving air quality and provide a road map to guide the air district's future activities.

2017 Clean Air Plan: Spare the Air, Cool the Climate

The air district has adopted several plans in an attempt to achieve state and federal air quality standards. Because the air basin has been designated as a non-attainment area for the

national ozone standard since 1998, the air district has prepared ozone attainment plans in 1999, 2001, 2005, and 2010. The *2017 Clean Air Plan: Spare the Air, Cool the Climate* ("2017 Clean Air Plan") updates the air district's most recent state ozone plan, the 2010 Clean Air Plan, pursuant to the requirements of the California Health and Safety Code. The 2017 Clean Air Plan defines an integrated, multi-pollutant control strategy to reduce emissions of particulate matter, toxic air contaminants, ozone precursors and greenhouse gases. The 2017 Clean Air Plan includes a variety of control measures, many of which relate to industrial uses or are for regional implementation; some of the control measures relate to residential or commercial development. Refer to Volume 2 of the 2017 Clean Air Plan for full descriptions of the control measures (Bay Area Air Quality Management District 2017b).

City of Gilroy General Plan

The *City of Gilroy 2020 General Plan* policy 21.01 requires that air pollution sources (such as freeways, arterials, industrial sites, etc.) be separated from residential areas and other "sensitive receptors" (such as schools, hospital, and nursing homes) that would be adversely affected by close proximity to air pollutants. Policy 21.05 requires air quality impacts from construction activities to be reduced through appropriate mitigation measures.

2.3 THRESHOLDS OF SIGNIFICANCE

The thresholds of significance for determining air quality impacts are contained in the air district's 2017 CEQA Guidelines and are presented in Table 2-5, Thresholds of Significance for Criteria Air Pollutants.

Table 2-5 Thresholds of Significance for Criteria Air Pollutants

Criteria Air Pollutants	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lb/day)	Average Daily Emissions (lb/day)	Annual Emissions (tons/year)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (exhaust)[1]	82	15
$PM_{2.5}$	54 (exhaust)[1]	54	10

SOURCE: Bay Area Air Quality Management District 2017a

NOTES:

1. The thresholds of significance for particulate matter emissions from project construction apply to exhaust emissions only. The air district recommends implementation of best management practices to reduce fugitive dust emissions.

2.4 ANALYSIS

This section includes information and data regarding air quality issues that are relevant to the proposed project based on the thresholds of significance described above.

Construction Emissions

Construction emissions include mobile source exhaust emissions, emissions generated during the application of asphalt paving material and architectural coatings, as well as emissions of fugitive dust associated with earthmoving equipment. The criteria air pollutants generated during construction of the proposed project were estimated using California Emissions Estimator Model (CalEEMod) Version 2016.3.2 software. The unmitigated daily criteria air pollutant emissions resulting from project construction during summer and winter are summarized and reviewed against the air district thresholds in Table 2-6, Unmitigated Construction Criteria Air Pollutant Emissions. Refer to Appendix A for the CalEEMod modeling results and a memorandum describing the CalEEMod modeling assumptions and methodology, *Gilroy Sports Park Master Plan Phase III Amendments – Air Quality and Greenhouse Gas Emissions Modeling Assessment*.

Table 2-6 Unmitigated Construction Criteria Air Pollutant Emissions

Emissions	ROG	NO_X	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Summer[1,2]	55.66	42.46	2.20	2.02
Exceeds Daily Threshold?	*Yes*	*No*	*No*	*No*
Winter[1,2]	55.66	42.46	2.20	2.02
Exceeds Daily Threshold?	*Yes*	*No*	*No*	*No*

SOURCE: EMC Planning Group 2019
NOTES:
1. Results may vary due to rounding.
2. Expressed in pounds per day.

Operational Emissions

The proposed project would result in new mobile, area, and energy source criteria air pollutant emissions. The criteria air pollutant emissions generated during operation of the proposed project have been estimated using CalEEMod. The model was adjusted to account for required compliance with State requirements for Model Water Efficient Landscape Ordinance (MWELO) and the 2019 BEES (compliance with MWELO requirements does not result in reduction of criteria air pollutant emissions but does reduce greenhouse gas emissions as described in Section 3, Greenhouse Gas Emissions). Refer to Appendix A for CalEEMod modeling results.

The operational emissions from buildout of the proposed project are summarized and reviewed against the air district thresholds in Table 2-7, Mitigated Operational Criteria Air Pollutant Emissions.

Table 2-7 Mitigated Operational Criteria Air Pollutant Emissions

Emissions	ROG	NO_X	PM_{10}	$PM_{2.5}$
Summer[1,2,3]	5.27	11.46	7.65	2.13
Exceeds Daily Threshold?	*No*	*No*	*No*	*No*
Winter[1,2,3]	4.89	11.94	7.65	2.13
Exceeds Daily Threshold?	*No*	*No*	*No*	*No*
Annual[1,3,4]	0.82	1.78	1.11	0.31
Exceeds Annual Threshold?	*No*	*No*	*No*	*No*

SOURCE: EMC Planning Group 2019
NOTES:
1. Results may vary due to rounding.
2. Expressed in pounds per day.
3. Includes reductions from compliance with 2019 Title 24 building energy efficiency standards. Compliance with MWELO does not result in reduction of criteria air pollutant emissions.
4. Expressed in tons per year.

2.5 CONCLUSION

Construction Emissions

Criteria Air Pollutants

Construction of the proposed project would result in ROG emissions that exceed the air district thresholds marginally (see Table 2-6). The air district recommends implementing the eight Basic Construction Mitigation Measures listed in Table 8-2 of the 2017 CEQA Guidelines whether or not construction-related emissions exceed the air district thresholds. Representative basic construction mitigation measures include, but are not limited to: watering all exposed surfaces two times per day, properly tuning all construction equipment in accordance with manufacturer's specifications, and limiting idling times to five minutes.

For projects where construction-related emissions exceed the air district thresholds, the air district recommends implementing the 13 Additional Construction Mitigation Measures listed in Table 8-3 of air district 2017 CEQA Guidelines. Representative additional construction mitigation measures include, but are not limited to: suspend all ground disturbance activities when average wind speeds exceed 20 mph, use low ROG coatings beyond local requirements, and equip all construction equipment, diesel trucks, and generators with Best Available Control Technology for emission reductions of NO_X and PM.

Therefore, a mitigation measure will be included in the CEQA document requiring future development to implement all air district-recommended construction mitigation measures.

Toxic Air Contaminants

During construction, sensitive receptors within 1,000 feet of the project site could be exposed to toxic air contaminants and $PM_{2.5}$ from diesel equipment and heavy-duty trucks. The air district recommends a site-specific community risks and hazards analysis to determine health impacts to receptors within a 1,000-foot radius.

Illingworth and Rodkin, as a subconsultant to EMC Planning Group, will prepare a health risk assessment that identifies sensitive receptors, quantifies toxic air contaminant emissions and identifies associated risks to human health from construction and operations of the project. If significant impacts are identified, the health risk assessment will include measures to reduce the impacts to less than significant. The health risk assessment will be included as an appendix to the CEQA document.

Operational Emissions

As presented in Table 2-7, operation of the proposed project will generate criteria air pollutant emissions that do not exceed the air district's daily or annual thresholds of significance. Therefore, no mitigation is required.

3.0
Greenhouse Gas Emissions

This section includes discussion of the science of climate change, existing setting conditions, applicable policy and regulatory direction regarding climate change, the sources and projected volume of greenhouse gas (GHG) emissions that would be generated by the proposed project, and the GHG impacts in light of applicable thresholds of significance.

3.1 Environmental Setting

This section provides a general overview of climate change science and climate change issues in California.

Climate Change Science

The international scientific community has concluded with a high degree of confidence that human activities are causing an accelerated warming of the atmosphere. The resulting change in climate has serious global implications and consequently, human activities that contribute to climate change may have a potentially significant effect on the environment. In recent years, concern about climate change and its potential impacts has risen dramatically. That concern has translated into a range of international treaties and national and regional agreements aimed at diminishing the rate at which global warming is occurring. Over time, the federal government has been tackling concerns about climate change to varying degrees through a range of initiatives and regulatory actions. Many states and local agencies, private sector interests, and other public and private interests have also taken initiative to combat climate change. At the state level, California has taken a leadership role in tackling climate change, as evidenced by the programs outlined in the Regulatory Setting section below.

Causes of Climate Change

The greenhouse effect naturally regulates the Earth's temperature. However, human activity has increased the intensity of the greenhouse effect by releasing increasing amounts of GHGs into the atmosphere. GHGs can remain in the atmosphere for decades or even hundreds of thousands of years (depending on the particular GHG). The GHG emissions that are already in the atmosphere will continue to cause climate change for years to come, just as the warming being experienced now is the result of emissions produced in the past. Climatic changes are happening now and are projected to increase in frequency and severity before the benefits of GHG emission reductions will be realized.

Effects of Climate Change

Increased concentrations of GHGs in the atmosphere result in increased air, surface, and ocean temperatures. Many of the effects and impacts of climate change stem from resulting changes in temperature and meteorological responses to those changes.

Rising Temperatures

The Intergovernmental Panel on Climate Change, which includes more than 1,300 scientists from the United States and other countries, estimated that over the last century, global temperatures have increased by about 3.6 degrees Fahrenheit (°F) (NASA 2019). The Intergovernmental Panel on Climate Change forecasts indicate that global temperatures can be expected to continue to rise between 2.5 and 10°F over the next century. According to the California Climate Adaptation Strategy (California Natural Resources Agency 2009), average state temperatures are currently predicted to increase 1.8 to 5.4°F by 2050 and 3.6 to 9°F by 2100.

Cal-Adapt, a climate change projection modeling tool developed by California Energy Commission, indicates that temperatures in Gilroy have historically (1950-2005) averaged about 72.9°F. Temperatures are projected to rise between 3.2 and 8.0°F by 2099, based on average low and high emissions scenarios. Gilroy has historically experienced four extreme heat days per year (over 99.7°F). The model projections fluctuate on an annual basis. The number of extreme heat days per year is expected to increase to 10 days by 2099 (Cal-Adapt 2019a).

Reduced Snowpack

The Sierra Nevada snowpack acts as a large natural reservoir that stores water during the winter and releases it into rivers and reservoirs in the spring and summer. It is expected that there will be less snowfall in the Sierra Nevada and that the elevations at which snow falls will rise. Similarly, there will be less snowpack water storage to supply runoff water in the warmer months. It has already been documented that California's snow line is rising. More precipitation is expected to fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack. The spring snowpack in the Sierra Nevada decreased by 10 percent in the last century and may decrease as much as 70 to 90 percent by 2100 (Cal-Adapt 2019b). It is estimated that for each 1.8°F increase in Earth's average temperature, the Sierra snowpack will retreat 500 feet in elevation and an overall reduction of 25 to 40 percent reduction in snowpack by 2050 is projected. The Sierra Nevada snowpack provides approximately 80 percent of California's annual water supply. The rapid decrease in snowpack and spring melt poses a threat to groundwater resources in many parts of the state where rivers that recharge groundwater with melt water from the Sierra Nevada will have reduced groundwater recharge potential.

Water Supply

Climate change is expected to increase pressure on and competition for water resources, further exacerbating already stretched water supplies. Decreasing snowpack and spring stream flows and increasing demand for water from a growing population and hotter climate could lead to increasing water shortages. Water supplies are also at risk from rising sea levels. Competition for water between cities, farmers, and the environment is expected to increase.

Anticipated changes to source water conditions including more intense storm events, longer drought periods, reduced snowpack at lower elevations, and earlier spring runoff will likely impact the quality of the source waters. Changes in source water quantity and quality may result in increased treatment needs and increased treatment costs.

Precipitation Levels

Precipitation levels are difficult to predict compared to other indicators of climate change. Annual rain and snowfall patterns vary widely from year to year, especially in California. Generally, higher temperatures increase evaporation and decrease snowfall, resulting in a drier climate. On average, Cal-Adapt projections show little change in total annual precipitation in California. Furthermore, among several models, precipitation projections do not show a consistent trend during the next century. The Mediterranean seasonal precipitation pattern is expected to continue, with most precipitation falling during winter from North Pacific storms. One of the four climate models projects slightly wetter winters, and another projects slightly drier winters with a 10 to 20 percent decrease in total annual precipitation. However, even modest changes would have a significant impact because California ecosystems are conditioned to historical precipitation levels and water resources are nearly fully utilized.

Gilroy has historically averaged about 21.7 inches of rainfall per year. That number is forecast to increase to about 27.1 inches by the end of the century (Cal-Adapt 2019c).

More Frequent and Extreme Storm Events

Extreme weather is expected to become more common throughout California. More extreme storm events are expected to increase water runoff to streams and rivers during the winter months, heightening flood risks. Warmer ocean surface temperatures have caused warmer and wetter conditions in the Sierra Nevada, increasing flood risk. Strong winter storms may produce atmospheric rivers that transport large amounts of water vapor from the Pacific Ocean to the California coast. These often last for days and drop heavy rain or snow. Storms involving such atmospheric rivers occurred during the winter of 2016-2017. As the strength of these storms increases, the risk of flooding increases.

Sea Level Rise

Sea level rise is one of the most significant effects of climate change. Sea level has been rising over the past century, and the rate has increased in recent decades. Global mean sea level in 2017 was the highest annual average in the satellite era (since 1993) with a value of 77 millimeters above the 1993 average (Hartfield, Blunden, and Arndt 2018). Globally, sea levels are rising due to two main reasons: thermal expansion of warming ocean water and melting of ice from glaciers and ice sheets. Rising sea levels amplify the threat and magnitude of storm surges in coastal areas. Water infrastructure, often located along the coast or tidally-influenced water bodies, can be vulnerable to greater changes in storm surge intensity. The threat of flooding and damage to water infrastructure will continue to increase over time as sea levels rise and the magnitude of storms increase. Rising sea levels will create stress on coastal ecosystems that provide recreation, protection from storms, and habitat for fish and wildlife, including commercially valuable fisheries. Rising sea levels can also introduce new, or exacerbate existing, saltwater intrusion into freshwater resources.

Diminished Air Quality

Climate change is expected to exacerbate air quality problems by increasing the frequency, duration, and intensity of conditions conducive to air pollution formation. Higher temperatures and increased ultraviolet radiation from climate change are expected to facilitate the chemical formation of more secondary air pollutants from ground-level sources. Conversely, decreased precipitation is expected to reduce the amount of particulates cleansed from the air. Incidents of wildfires are expected to increase due to climate change, further contributing to air quality problems.

According to the American Lung Association, Californians experience the worst air quality in the nation. Statewide, over 35 million Californians (91 percent) live in counties affected by unhealthy air during the year (American Lung Association 2017).

Ecosystem Changes

Climate change effects will have broad impacts on local and regional ecosystems, habitats, and wildlife as average temperatures increase, precipitation patterns change, and more extreme weather events occur. Species that cannot rapidly adapt are at risk of extinction. As temperatures increase, California vegetation is expected to change. Desert and grassland vegetation is projected to increase while forest vegetation is projected to generally decline. The natural cycle of plant flowering and pollination, as well as the temperature conditions necessary for a thriving locally adapted agriculture, may also be affected. Perennial crops, such as grapes, may take years to recover. Increased temperatures also provide a foothold for invasive species of weeds, insects, and animals.

Social Vulnerability to Climate Change

The impacts of climate change will not affect people equally. People exposed to the most severe climate-related hazards are often those least able to cope with the associated impacts, due to their limited resources and adaptive capacity. Climate change is expected to have a greater impact on larger populations living in poorer and developing countries with lower incomes that rely on natural resources and agricultural systems that will likely be affected by changing climates.

Certain groups in developed countries like the United States will also experience more impacts from climate change than others. People in rural areas are more likely to be affected by climate change related droughts or severe storms compared to their urban counterparts. However, certain groups living in cities will also be at higher risk than others. Place of residence is another vulnerability indicator, as renters, households without air conditioning, households lacking access to grocery stores, households in treeless areas, and households on impervious land cover are also more vulnerable to climate change impacts.

City of Gilroy residents who are at greatest risk include children, the elderly, those with existing health problems, the socially and/or economically disadvantaged, those who are less mobile, and those who work outdoors. Place of residence is another vulnerability indicator, as renters, households without air conditioning, households lacking access to grocery stores, households in treeless areas, and households on impervious land cover are also more vulnerable to climate change impacts.

Health Effects/Illness

As temperatures rise from global warming, the frequency and severity of heat waves will grow and increase the potential for bad air days, which can lead to increases in illness and death due to dehydration, heart attack, stroke, and respiratory disease. Additionally, dry conditions can lead to a greater number of wildfires producing smoke that puts people with asthma and respiratory conditions at risk of illness or death.

Higher temperatures and the increased frequency of heat waves are expected to significantly increase heat-related illnesses, such as heat exhaustion and heat stroke, while also exacerbating conditions associated with cardiovascular and respiratory diseases, diabetes, nervous system disorders, emphysema, and epilepsy. An increase of 10°F in average daily temperature is associated with a 2.3 percent increase in mortality. During heat waves mortality rates can increase to about nine percent. As temperatures in the area increase, vulnerable populations such as children, the elderly, people with existing illnesses, and people who work outdoors will face the greatest risk of heat-related illness.

As climate change affects the temperature, humidity, and rainfall levels across California, some areas could become more suitable habitats for insects (especially mosquitoes), ticks,

and mites that may carry diseases. Wetter regions are typically more susceptible to vector-borne diseases, especially human hantavirus cardiopulmonary syndrome, Lyme disease, and West Nile virus.

Greenhouse Gas Types

GHGs are emitted by natural processes and human activities. The human-produced GHGs most responsible for global warming and their relative contribution to it are carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons. The contribution of these GHGs to global warming based on the U.S. inventory of GHGs in 2017 (United States Environmental Protection Agency 2019b) is summarized in Table 3-1, GHG Types and Their Contribution to Global Warming.

Table 3-1 GHG Types and Their Contribution to Global Warming

Greenhouse Gas	Percent of all GHG	Typical Sources
Carbon dioxide	81.6 percent	Combustion of fuels, solid waste, wood
Methane (CH_4)	10.2 percent	Fuel production/combustion; livestock, decay of organic materials
Nitrous Oxide (N_2O)	5.6 percent	Combustion of fuels, solid waste, agricultural/industrial processes
Chlorofluorocarbons (CFCs)	2.6 percent	Industrial processes

SOURCE: United States Environmental Protection Agency 2019b
NOTE: Percentages reflect weighting for global warming potential.

Greenhouse Gas Global Warming Potentials

Each type of GHG has a different capacity to trap heat in the atmosphere and each type remains in the atmosphere for a particular length of time. The ability of a GHG to trap heat is measured by an index called the global warming potential expressed as carbon dioxide equivalent. Carbon dioxide is considered the baseline GHG in this index and has a global warming potential of one.

The GHG volume produced by a particular source is often expressed in terms of carbon dioxide equivalent (CO_2e). Carbon dioxide equivalent describes how much global warming a given type of GHG will cause, with the global warming potential of CO_2 as the base reference. Carbon dioxide equivalent is useful because it allows comparisons of the impact from many different GHGs, such as methane, perfluorocarbons, or nitrous oxide. If a project is a source of several types of GHGs, their individual global warming potential can be standardized and expressed in terms of CO_2e. Table 3-2, GHG Global Warming Potentials presents a summary of the global warming potential of various GHGs.

Methane has a global warming potential of 21 times that of carbon dioxide, and nitrous oxide has a global warming potential of 310 times that of CO_2. The families of chlorofluorocarbons, hydrofluorocarbons, and perfluorocarbons have a substantially greater global warming

potential than other GHGs, generally ranging from approximately 1,300 to over 10,000 times that of CO_2. While CO_2 represents the vast majority of the total volume of GHGs released into the atmosphere, the release of even small quantities of other types of GHGs can be significant for their contribution to climate change.

Table 3-2 GHG Global Warming Potentials

GHG	Atmospheric Lifetime (Years)	Global Warming Potential (100-Year Time Horizon)
Carbon Dioxide CO_2	50-200	1
Methane CH_4	12 (+/- 3)	21
Nitrous Oxide N_2O	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC Tetrafluoromethane CF_4	50,000	6,500
PFC Hexafluoroethane C_2F_6	10,000	9,200
Sulfur Hexafluoride SF_6	3,200	23,900

SOURCE: United Nations Framework Convention on Climate Change 2019

Greenhouse Gas Inventories

California GHG Emissions Inventory

California is a substantial contributor of global greenhouse gases. Based on the California Air Resources Board's most recent state GHG inventory, a net of about 424.1 million metric tons of CO_2e were generated in 2017 (California Air Resources Board 2019c). In 2017, about 41 percent of all GHG gases emitted in the state came from the transportation sector. Industrial uses and electric power generation (in state generation and out of state generation for imported electricity) were the second and third largest categories at about 24 percent and 15 percent, respectively. The commercial and residential use sectors combined to generate about 12 percent of the 2017 emissions, while the agricultural sector contributed about 8 percent.

Bay Area GHG Emissions Inventory

The air district has developed an emission inventory for the Bay Area that includes direct and indirect GHG emissions due to human activities. The emissions are estimated for industrial, commercial, transportation, residential, forestry, and agriculture activities. Both direct GHG emissions from locally generated electricity in the Bay Area and indirect emissions from out-of-region generated electricity for consumption in the region are reported.

The air district's most recent GHG emissions inventory for the region was prepared in support of its 2017 Clean Air Plan. As identified in *Greenhouse Gas Emission Estimates and Draft Forecasts. Update and Work in Progress* (Bay Area Air Quality Management District 2017c), as of the 1990 baseline year, 87.7 million metric tons CO_2e per year were generated within the air basin. By 2015, that number had declined to about 85 million metric tons CO_2e. The transportation sector comprises about 41 percent of the total emissions. The industrial uses (mostly refineries and a cement plant), comprise about 26 percent; electricity and cogeneration, including both direct combustion and electricity imports, comprises about 14 percent; and commercial and residential, mostly fuel combustion for heating and cooking, comprises about 11 percent. The remainder is from high global warming potential gases (about four percent), recycling and waste facilities (about three percent) and agriculture and farming operations (about one percent) (Bay Area Air Quality Management District 2017c).

Existing Sources of GHG Emissions on the Project Site

Agricultural production is the only source of existing emissions sources within the project site. This activity generates GHG emissions, primarily from the use of agricultural machinery and indirect emissions from pumping agricultural irrigation water. Emissions from equipment use are assumed to be nominal. Emissions from water pumping are quantified as the baseline and reported in Section 3.3, Analysis below.

3.2 REGULATORY SETTING

Federal, state, and regional policies and regulations pertaining to climate change are summarized below. These provide context for how climate change is being addressed and to identify policy and regulatory actions whose implementation would lessen the contribution of the proposed project to climate change. The federal government has taken significant regulatory steps toward addressing climate change. Generally, California policy and regulations are as or more comprehensive and stringent than federal actions; therefore, this regulatory section focuses on state activity.

Federal

Climate Change Action Plan

In October 1993, former President Clinton announced the Climate Change Action Plan, which had a goal of returning GHG emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions. On March 21, 1994, the U.S. joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. Under the Convention, governments agreed to gather and share information on GHG emissions,

national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of global climate change.

In June 2013, the Executive Office of the President released former President Obama's Climate Action Plan. The Climate Action Plan has three key pillars: cut GHG pollution in America, prepare the United States for the impacts of climate change, and lead international efforts to combat global climate change and prepare for its impacts. The Climate Action Plan was prepared as a blueprint for national and international action, and contains new steps to achieve the stated goals.

Endangerment and Cause or Contribute Findings for GHGs

On April 2, 2007, in the court case of *Massachusetts et al. vs. the United States Environmental Protection Agency*, the United States Supreme Court found that GHGs are air pollutants covered by the federal Clean Air Act. The Supreme Court held that the Administrator of the EPA must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the Administrator is required to follow the language of Section 202(a) of the Clean Air Act. On December 7, 2009, the Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action was a prerequisite for implementing GHG emission standards for vehicles. In collaboration with the National Highway Traffic Safety Administration (NHTSA) and California Air Resources Board (CARB), the EPA developed emission standards for light-duty vehicles (2012-2025 model years), and heavy-duty vehicles (2014-2027 model years).

Mandatory Reporting of GHGs Rule

On September 22, 2009, the EPA issued a final rule for the mandatory reporting of GHG data and other relevant information from large sources in the United States (Code of Federal

Regulations Title 40, Part 98). This comprehensive, nationwide emissions data is intended to provide a better understanding of the sources of GHGs and guide development of policies and programs to reduce emissions. The mandatory reporting rule applies to direct GHG emitting sources; suppliers of fossil fuel, industrial gas, and other products that would result in GHG emissions if released, combusted, or oxidized; and facilities that inject carbon dioxide underground for geologic sequestration or other reasons. In general, facilities that emit 25,000 metric tons (MT) CO_2e or more per year of GHGs are required to submit annual reports to the EPA.

Corporate Average Fuel Economy Standards

First enacted by Congress in 1975, the purpose of the Corporate Average Fuel Economy standards is to reduce energy consumption by increasing the fuel economy of passenger cars and light trucks. On April 1, 2010, the NHTSA and EPA issued a joint final rule establishing a new national program to regulate passenger cars and light trucks in order to improve fuel economy and reduce GHG emissions. According to the latest update, issued on July 18, 2016, the NHTSA, EPA and CARB increased Corporate Average Fuel Economy standards for passenger cars and light trucks from an average fuel economy of 34.1 miles per gallon by model year 2016 to 38.3 mile per gallon by model year 2021 and 46.3 miles per gallon by model year 2025. Together with the EPA's standards for GHG emissions, which also enable manufacturers to achieve compliance by improving the air conditioners of their vehicles, the national program overall is expected to result in improvement levels equivalent to 50.8 miles per gallon.

Clean Power Plan

On August 3, 2015, the EPA issued the Clean Power Plan, which will cut GHG emissions from existing power plants. The Clean Power Plan establishes interim and final carbon dioxide emission performance rates for two types of electric generating units—steam electric and natural gas fired power plants—under Section 111(d) of the Clean Air Act. The Clean Power Plan also establishes state-specific interim and final goals for each state, based on these limits and each state's mix of power plants.

On March 28, 2017, President Trump signed the Energy Independence Executive Order that directs the Environmental Protection Agency to begin rolling back or eliminating the Clean Power Plan, including its provision requiring power plants to curb greenhouse gas emissions. As of September 2019, the executive order was still being litigated.

State

Overall Statutory Framework

The California Legislature has enacted a series of statutes addressing the need to reduce GHG emissions across the State. These statutes can be categorized into four broad categories:

(i) statutes setting numerical statewide targets for GHG reductions, and authorizing California Air Resources Board to enact regulations to achieve such targets; (ii) statutes setting separate targets for increasing the use of renewable energy for the generation of electricity throughout the state; (iii) statutes addressing the carbon intensity of vehicle fuels, which prompted the adoption of regulations by California Air Resources Board; and (iv) statutes intended to facilitate land use planning consistent with statewide climate objectives. The discussion below will address each of these key sets of statutes, as well as California Air Resources Board "Scoping Plans" intended to achieve GHG reductions under the first set of statutes and recent building code requirements intended to reduce energy consumption.

Statutes Setting Statewide GHG Reduction Targets

Assembly Bill 32 (Global Warming Solutions Act)

In September 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that was phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

Senate Bill 32

Effective January 1, 2017, Senate Bill (SB) 32 added a new section to the Health and Safety Code. It provides that "[i]n adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by [Division 25.5 of the Health and Safety Code], [CARB] shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030." SB 32 requires California, by the year 2030, to reduce its statewide GHG emissions so that they are 40 percent below those that occurred in 1990.

With AB 32 (2006) and SB 32 (2016), the Legislature has codified some of the ambitious GHG reduction targets included within certain high-profile Executive Orders issued by the last two governors. The 2020 statewide GHG reduction target in AB 32 was consistent with the second of three statewide emissions reduction targets set forth in former Governor Arnold Schwarzenegger's 2005 Executive Order known as S-3-05, which is expressly mentioned in AB 32. That Executive Branch document included the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels. To meet the targets, the Governor directed several state agencies to cooperate in the development of a

climate action plan. The Secretary of Cal-EPA leads the Climate Action Team, whose goal is to implement global warming emission reduction programs identified in the Climate Action Plan and to report on the progress made toward meeting the emission reduction targets established in the executive order.

In 2015, former Governor Brown issued another Executive Order, B-30-15, which created a "new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 is established in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050." SB 32 codified this target.

The Legislature has not yet set a 2050 target in the manner done for 2020 and 2030 through AB 32 and SB 32, though references to a 2050 target can be found in statutes outside the Health and Safety Code. In the 2015 legislative session, the Legislature passed Senate Bill 350 (SB 350), which is discussed in more detail below. This legislation added to the Public Utilities Code language that essentially puts into statute the 2050 GHG reduction target already identified in Executive Order S-3-05, albeit in the limited context of new state policies (i) increasing the overall share of electricity that must be produced through renewable energy sources and (ii) directing certain state agencies to begin planning for the widespread electrification of the California vehicle fleet. Section 740.12(a)(1)(D) of the Public Utilities Code now states that "[t]he Legislature finds and declares [that] … [r]educing emissions of [GHGs] to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050 will require widespread transportation electrification." Furthermore, Section 740.12(b) now states that the California Public Utilities Commission, in consultation with California Air Resources Board and the California Energy Commission, must "direct electrical corporations to file applications for programs and investments to accelerate widespread transportation electrification to reduce dependence on petroleum, meet air quality standards, … and reduce emissions of greenhouse gases to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050."

Statutes Setting Targets for the Use of Renewable Energy for the Generation of Electricity

California Renewables Portfolio Standard

In September 2002, the Legislature enacted Senate Bill 1078 (Stats. 2002, ch. 516), which established the Renewables Portfolio Standard program, requiring retail sellers of electricity, including electrical corporations, community choice aggregators, and electric service providers, to purchase a specified minimum percentage of electricity generated by eligible renewable energy resources such as wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas. The legislation set a target by which 20 percent of the State's electricity would be generated by renewable sources. As described in the Legislative

Counsel's Digest, Senate Bill 1078 required "[e]ach electrical corporation … to increase its total procurement of eligible renewable energy resources by at least one percent per year so that 20 percent of its retail sales are procured from eligible renewable energy resources. If an electrical corporation fails to procure sufficient eligible renewable energy resources in a given year to meet an annual target, the electrical corporation would be required to procure additional eligible renewable resources in subsequent years to compensate for the shortfall, if funds are made available as described. An electrical corporation with at least 20 percent of retail sales procured from eligible renewable energy resources in any year would not be required to increase its procurement in the following year."

In September 2006, the Legislature enacted Senate Bill 107, which modified the Renewables Portfolio Standard to require that at least 20 percent of electricity retail sales be served by renewable energy resources by year 2010. In April 2011, the Legislature, in a special session, enacted Senate Bill X1-2, which set even more aggressive statutory targets for renewable electricity, culminating in the requirement that 33 percent of the State's electricity come from renewables by 2020. This legislation applies to all electricity retailers in the State, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must meet renewable energy goals of 20 percent of retail sales from renewables by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020.

In 2015, the Legislature enacted SB 350. Senate Bill 350 embodies a policy encouraging a substantial increase in the use of electric vehicles and increased the Renewable Portfolio Standard to require 50 percent of electricity generated to be from renewables by 2030. On September 10, 2018, former Governor Brown signed into law SB 100 and Executive Order B-55-18. SB 100 raises California's Renewable Portfolio Standard requirement to 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. In addition to targets under AB 32 and SB 32, Executive Order B-55-18 establishes a carbon neutrality goal for California by 2045; and sets a goal to maintain net negative emissions thereafter.

As noted earlier, the Public Utilities Code now states that the California Public Utilities Commission, in consultation with California Air Resources Board and the California Energy Commission, must "direct electrical corporations to file applications for programs and investments to accelerate widespread transportation electrification to reduce dependence on petroleum, meet air quality standards, … and reduce emissions of greenhouse gases to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050."

In March 2012, former Governor Brown issued an Executive Order, B-16-12, which embodied a similar vision of a future in which zero-emission vehicles will play a big part in helping the state meet its GHG reduction targets. Executive Order B-16-12 directed state government to accelerate the market for electric vehicles in California through fleet replacement and electric vehicle infrastructure. The Executive Order set the following targets:

- By 2015, all major cities in California will have adequate infrastructure and be "zero-emission vehicles ready";
- By 2020, the state will have established adequate infrastructure to support one million zero-emission vehicles in California;
- By 2025, there will be 1.5 million zero-emission vehicles on the road in California; and
- By 2050, virtually all personal transportation in the State will be based on zero-emission vehicles, and greenhouse gas emissions from the transportation sector will be reduced by 80 percent below 1990 levels.

In sum, California has set a statutory goal of requiring that, by the year 2030, 60 percent of the electricity generated in California should be from renewable sources, with increased generation capacity intended to be sufficient to allow the mass conversion of the statewide vehicle fleet from petroleum-fueled vehicles to electrical vehicles and/or other zero-emission vehicles. The Legislature is thus looking to California drivers to buy electric cars, powered by green energy, to help the State meet its aggressive statutory goal, created by SB 32, of reducing statewide GHG emissions by 2030 to 40 percent below 1990 levels. Another key prong to this strategy is to make petroleum-based fuels less carbon intensive. A number of statutes in recent years have addressed that strategy. These are discussed immediately below.

Statutes and California Air Resources Board Regulations Addressing the Carbon Intensity of Petroleum-based Transportation Fuels

Assembly Bill 1493, Pavley Clean Cars Standards

In July 2002, the Legislature enacted Assembly Bill 1493 ("Pavley Bill"), which directed CARB to develop and adopt regulations that achieve the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks beginning with model year 2009. In September 2004, pursuant to this directive, California Air Resources Board approved regulations to reduce GHG emissions from new motor vehicles beginning with the 2009 model year. These regulations created what are commonly known as the "Pavley standards." In September 2009, California Air Resources Board adopted amendments to the Pavley standards to reduce GHG emissions from new motor vehicles through the 2016 model year. These regulations created what are commonly known as the "Pavley II standards."

In January 2012, California Air Resources Board adopted an Advanced Clean Cars program aimed at reducing both smog-causing pollutants and GHG emissions for vehicles model years 2017-2025. This historic program, developed in coordination with the EPA and NHTSA, combined the control of smog-causing (criteria) pollutants and GHG emissions into a single coordinated set of requirements for model years 2015 through 2025. The regulations focus on substantially increasing the number of plug-in hybrid cars and zero-emission vehicles in the vehicle fleet and on making fuels such as electricity and hydrogen readily available for these vehicle technologies. The components of the Advanced Clean Cars program are the low-emission vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the zero-emission vehicle regulation, which requires manufacturers to produce an increasing number of pure zero-emission vehicles (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years.

It is expected that the Advanced Clean Car regulations will reduce GHG emissions from California passenger vehicles by about 34 percent below 2016 levels by 2025, all while improving fuel efficiency and reducing motorists' costs.

Cap and Trade Program

On October 20, 2011, in a related action, California Air Resources Board adopted the final cap-and-trade program for California. The California cap-and-trade program will create a market-based system with an overall emissions limit for affected sectors. The program is intended to regulate more than 85 percent of California's emissions and staggers compliance requirements according to the following schedule: (1) electricity generation and large industrial sources (2012); (2) fuel combustion and transportation (2015).

According to 2012 guidance published by California Air Resources Board, "[t]he Cap-and-Trade Program will reduce greenhouse gas (GHG) emissions from major sources (covered entities) by setting a firm cap on statewide GHG emissions while employing market mechanisms to cost-effectively achieve the emission-reduction goals. The statewide cap for GHG emissions from major sources commenced in 2013. This cap for GHG emissions declines over time, achieving GHG emission reductions throughout the program's duration. Each covered entity will be required to surrender one permit to emit (the majority of which will be allowances, entities are also allowed to use a limited number of California Air Resources Board offset credits) for each ton of GHG emissions they emit. Some covered entities will be allocated some allowances and will be able to buy additional allowances at auction, purchase allowances from others, or purchase offset credits." The guidance goes on to say that "starting in 2012, major GHG-emitting sources, such as electricity generation (including imports), and large stationary sources (e.g., refineries, cement production facilities, oil and gas production facilities, glass manufacturing facilities, and food processing plants) that emit more than 25,000 MT CO_2e per year will have to comply with the cap-and-

trade program. The program expands in 2015 to include fuel distributors (natural gas and propane fuel providers and transportation fuel providers) to address emissions from transportation fuels, and from combustion of other fossil fuels not directly covered at large sources in the program's initial phase."

In early 2017, former Governor Brown signed AB 398, which extended the life of the existing Cap and Trade Program through December 2030.

Statutes Intended to Facilitate Land Use Planning Consistent with Statewide Climate Objectives

California Senate Bill 375 (Sustainable Communities Strategy)

This 2008 legislation built on AB 32 by setting forth a mechanism for coordinating land use and transportation on a regional level for the purpose of reducing GHGs. The focus is to reduce miles traveled by passenger vehicles and light trucks. California Air Resources Board is required to set GHG reduction targets for each metropolitan region for the years 2020 and 2035. Each of California's metropolitan planning organizations then prepares a sustainable communities strategy that demonstrates how the region will meet its GHG reduction target through integrated land use, housing, and transportation planning. Once adopted by the metropolitan planning organizations, the sustainable communities strategy is to be incorporated into that region's federally enforceable regional transportation plan. If a metropolitan planning organization is unable to meet the targets through the sustainable communities strategy, then an alternative planning strategy must be developed that demonstrates how targets could be achieved, even if meeting the targets is deemed to be infeasible.

In 2013, the San Francisco Bay Metropolitan Transportation Commission and the Association of Bay Area Governments jointly approved Plan Bay Area, which includes the region's Sustainable Communities Strategy and the 2040 Regional Transportation Plan. Plan Bay Area includes a target of reducing GHGs to seven percent below 2005 emissions levels by 2020, and 15 percent below 2005 levels by 2035.

Local agencies that adopt land use, housing, and transportation policies that are consistent with and facilitate implementation of the related GHG reduction strategies in a sustainable communities strategy benefit through potential CEQA streamlining for qualifying projects proposed within their boundaries. Adoption of such policies can be a part of a general plan update or other similar policy adoption process. However a local agency's general plan is not required to be consistent with a sustainable communities strategy.

Climate Change Scoping Plans

AB 32 Scoping Plan

In December 2008, California Air Resources Board adopted the Climate Change Scoping Plan, which contains the main strategies California will implement to achieve reduction of

approximately 118 million metric tons (MMT) CO_2e, or approximately 22 percent from the state's projected 2020 emission level of 545 MMT of CO_2e under a business-as-usual scenario This is a reduction of 47 MMT CO_2e, or almost 10 percent, from 2008 emissions. California Air Resources Board's original 2020 projection was 596 MMT CO_2e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008. The Scoping Plan also includes California Air Resources Board recommended GHG reductions for each emissions sector of the state GHG inventory. California Air Resources Board estimates the largest reductions in GHG emissions would be by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (26.1 MMT CO_2e);
- The Low Carbon Fuel Standard (15.0 MMT CO_2e);
- Energy efficiency measures in buildings and appliances (11.9 MMT CO_2e); and
- Renewable portfolio and electricity standards for electricity production (23.4 MMT CO_2e).

In 2011, California Air Resources Board adopted a cap-and-trade regulation. The cap-and-trade program covers major sources of GHG emissions in the State such as refineries, power plants, industrial facilities, and transportation fuels. The cap-and-trade program includes an enforceable emissions cap that will decline over time. The State distributes allowances, which are tradable permits, equal to the emissions allowed under the cap. Sources under the cap are required to surrender allowances and offsets equal to their emissions at the end of each compliance period. Enforceable compliance obligations started in 2013. The program applies to facilities that comprise 85 percent of the states GHG emissions.

With regard to land use planning, the Scoping Plan expects that reductions of approximately 3.0 MMT CO_2e will be achieved through implementation of Senate Bill 375 (SB 375), which is discussed further below.

2014 Scoping Plan Update

In response to comments on the 2008 Scoping Plan, and AB 32's requirement to update the Scoping Plan every five years, California Air Resources Board revised and reapproved the Scoping Plan, and prepared the first update to the 2008 Scoping Plan in 2014 (2014 Scoping Plan). The 2014 Scoping Plan contains the main strategies California will implement to achieve a reduction of 80 MMT of CO_2e emissions, or approximately 16 percent, from the state's projected 2020 emission level of 507 MMT of CO_2e under the business-as-usual scenario defined in the 2014 Scoping Plan. The 2014 Scoping Plan also includes a breakdown of the amount of GHG reductions CARB recommends for each emissions sector of the state's GHG inventory. Several strategies to reduce GHG emissions are included: the Low Carbon Fuel Standard, the Pavley Rule, the Advanced Clean Cars program, the Renewable Portfolio Standard, and the Sustainable Communities Strategy.

2017 Scoping Plan

With the passage of SB 32, the Legislature also passed companion legislation AB 197, which provides additional direction for developing the scoping plan. California Air Resources Board adopted the final 2017 Scoping Plan in November 2017. The 2017 Scoping Plan represents a second update to the scoping plan to reflect the 2030 target of reducing statewide GHG emissions by 40 percent below 1990 levels codified by SB 32. The GHG reduction strategies in the plan that California Air Resources Board proposes to implement to meet the target include:

- SB 350 - achieve 50 percent Renewables Portfolio Standard (RPS) by 2030 and doubling of energy efficiency savings by 2030;
- Low Carbon Fuel Standard - increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020);
- Mobile Source Strategy (Cleaner Technology and Fuels Scenario) - maintaining existing GHG standards for light- and heavy-duty vehicles, put 4.2 million zero-emission vehicles on the roads, and increase zero-emission buses, delivery and other trucks;
- Sustainable Freight Action Plan - improve freight system efficiency, maximize use of near-zero emission vehicles and equipment powered by renewable energy, and deploy over 100,000 zero-emission trucks and equipment by 2030;
- Short-Lived Climate Pollutant Reduction Strategy - reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030 and reduce emissions of black carbon 50 percent below 2013 levels by 2030;
- SB 375 Sustainable Communities Strategies - increased stringency of 2035 targets;
- Post-2020 Cap-and-Trade Program - declining caps, continued linkage with Québec, and linkage to Ontario, Canada;
- 20 percent reduction in greenhouse gas emissions from the refinery sector; and
- By 2018, develop an Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Building Code Requirements Intended to Reduce GHG Emissions

California Energy Code

The California Energy Code (California Code of Regulations, Title 24, Part 6), which is incorporated into the California Building Standards Code, was first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The California Energy Code is updated every three years by the California Energy Commission as the Building Energy Efficiency Standards (BEES) to allow consideration and possible

incorporation of new energy efficiency technologies and construction methods. Although the BEES were not originally intended to reduce GHG emissions, increased energy efficiency results in decreased GHG emissions because energy efficient buildings require less electricity. With less energy demand, the volume of GHG emissions produced as a byproduct of electricity production at fossil fuel powered power plants is reduced. The BEES apply to new construction of, and additions and alterations to, residential and nonresidential buildings.

2019 Building Energy Efficiency Standards. In May 2018, the California Energy Commission adopted the 2019 BEES. The 2019 BEES go into effect on January 1, 2020. Residential and non-residential buildings permitted after January 1, 2020 are required to comply with the 2019 BEES. The 2019 BEES are structured to achieve the state's goal that all new low-rise residential buildings (single-family and multi-family homes) be zero net energy. That is, the amount of energy provided by on-site renewable energy sources must be equal to the amount of energy used by the homes. For residential buildings, the 2019 BEES encourage demand responsive technologies including battery storage and heat pump water heaters and require improved the building thermal envelopes through high performance attics, walls and windows. In non-residential buildings, the 2019 BEES update indoor and outdoor lighting making maximum use of LED technology. For both residential and nonresidential buildings, the 2019 BEES enable the use of highly efficient air filters to trap hazardous particulates from both outdoor air and cooking and improve kitchen ventilation systems. Single-family homes built with the 2019 BEES will use about seven percent less energy due to energy efficiency measures versus those built under the 2016 BEES. Once rooftop solar electricity generation is factored in, homes built under the 2019 BEES will use about 53 percent less energy than those under the 2016 BEES. Non-residential buildings will use about 30 percent less energy due mainly to lighting upgrades (California Energy Commission 2018).

California Green Building Standards Code

The purpose of the California Green Building Standards Code (California Code of Regulations Title 24, Part 11) is to improve public health and safety and to promote the general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories: 1) planning and design; 2) energy efficiency; 3) water efficiency and conservation; 4) material conservation and resource efficiency; and 5) environmental quality. The California Green Building Standards, which became effective on January 1, 2011, instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial, low-rise residential uses, and state-owned buildings, as well as schools and hospitals. The mandatory standards require the following:

- 20 percent mandatory reduction in indoor water use relative to baseline levels;
- 50 percent construction/demolition waste must be diverted from landfills;
- Mandatory inspections of energy systems to ensure optimal working efficiency; and
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particle boards.

The voluntary standards require the following:

- Tier I: 15 percent improvement in energy requirements, stricter water conservation requirements for specific fixtures, 65 percent reduction in construction waste, 10 percent recycled content, 20 percent permeable paving, 20 percent cement reduction, and cool/solar reflective roof.
- Tier II: 30 percent improvement in energy requirements, stricter water conservation requirements for specific fixtures, 75 percent reduction in construction waste, 15 percent recycled content, 30 percent permeable paving, 30 percent cement reduction, and cool/solar reflective roof.

California Supreme Court Decisions Affecting GHG Analysis in CEQA Documents

The "Newhall Ranch" Case

On November 30, 2015, the California Supreme Court released its opinion on *Center for Biological Diversity v. California Department of Fish and Wildlife* (2015) 62 Cal.4th 204 (hereafter referred to as the Newhall Ranch Case).

Because of the importance of the Supreme Court as the top body within the California Judiciary, and because of the relative lack of judicial guidance regarding how GHG issues should be addressed in CEQA documents, the opinion provides very important legal guidance to agencies charged with preparing EIRs and negative declarations pursuant to CEQA.

The case involved a challenge to an EIR prepared by the California Department of Fish and Wildlife (CDFW) for the Newhall Ranch development project in Los Angeles County, which consists of approximately 20,000 dwelling units as well as commercial and business uses, schools, golf courses, parks and other community facilities in the City of Santa Clarita.

In relation to GHG analysis, the Newhall Ranch Case illustrates the difficulty of complying with statewide GHG reduction targets at the local level using CEQA to determine whether an individual project's GHG emissions will create a significant environmental impact triggering an EIR, mitigation, and/or statement of overriding consideration. The EIR utilized compliance with AB 32's GHG reduction goals as a threshold of significance and modelled

its analysis on the California Air Resources Board's business-as-usual emissions projections from the 2008 Scoping Plan. The EIR quantified the project's annual emissions at build-out and projected emissions in 2020 under a business-as-usual scenario, in which no additional regulatory actions were taken to reduce emissions. Since the Scoping Plan determined a reduction of 29 percent from business-as-usual was needed to meet AB 32's 2020 reduction goal, the EIR concluded that the project would have a less-than-significant impact because the project's annual GHG emissions were projected to be 31 percent below its business-as-usual estimate.

The Supreme Court concluded that the threshold of significance used by the EIR was permissible; however, the business-as-usual analysis lacked substantial evidence to demonstrate that the required percentage reduction from business-as-usual is the same for an individual project as for the entire state. The court expressed skepticism that a percentage reduction goal applicable to the state as a whole would apply without change to an individual development project, regardless of its size or location. Therefore, the Supreme Court determined that the EIR's GHG analysis was not sufficient to support the conclusion that GHG impacts would be less than significant.

In addition, the Supreme Court provided the following guidance regarding potential alternative approaches to GHG impact assessment at the project level for lead agencies:

1. The lead agency determination of what level of GHG emission reduction from business-as-usual projection that a new land development at the proposed location would need to achieve to comply with statewide goals upon examination of data behind the Scoping Plan's business-as-usual emission projections. The lead agency must provide substantial evidence and account for the disconnect between the Scoping Plan, which dealt with the state as a whole, and an analysis of an individual project's land use emissions (the same issues with CEQA compliance addressed in this case).

2. The lead agency may use a project's compliance with performance based standards – such as high building energy efficiency – adopted to fulfill a statewide plan to reduce or mitigate GHG emissions to assess consistency with AB 32 to the extent that the project features comply with or exceed the regulation (See Guidelines Section 15064.4(a)(2), (b)(3); see also Guidelines Section 15064(h)(3)). A significance analysis would then need to account for the additional GHG emissions – such as transportation emissions – beyond the regulated activity. Transportation emissions are in part a function of the location, size, and density or intensity of a project, and thus can be affected by local governments' land use decision making. Additionally, the lead agency may use a programmatic effort including a general plan, long range development plan, or a separate plan to reduce GHG emissions (such as Climate Action Plan or a SB 375 metropolitan regional transportation impact Sustainable

Communities Strategy) that accounts for specific geographical GHG emission reductions to streamline or tier project level CEQA analysis pursuant to Guidelines 15183.5(a)-(b) for land use and Public Resources Code Section 21155.2 and 21159.28 and Guidelines Section 15183.5(c) for transportation.

3. The lead agency may rely on existing numerical thresholds of significance for GHG emissions (such as the Bay Area Air Quality Management District's proposed threshold of significance of 1,100 MT CO_2e in annual emission for CEQA GHG emission analysis on new land use projects). The use of a numerical value provides what is "normally" considered significant but does not relieve a lead agency from independently determining the significance of the impact for the individual project (See Guidelines Section 15064.7).

The SANDAG Case

In *Cleveland National Forest Foundation v. San Diego Association of Governments* (2017) (SANDAG), the Supreme Court addressed the extent to which, if any, an EIR for a regional transportation plan with a sustainable communities strategy must address the proposed project's consistency with the 2050 target set forth in Executive Order S-03-05 (i.e., 80 percent below 1990 levels). The Court held that SANDAG did not abuse its discretion by failing to treat the 2050 GHG emissions target as a threshold of significance. The Court cautioned, however, that its decision applies narrowly to the facts of the case and that the analysis in the challenged EIR should not be used as an example for other lead agencies to follow going forward. Notably, the regional transportation plan itself covered a planning period that extended all the way to 2050.

The Court acknowledged the parties' agreement that "the Executive Order lacks the force of a legal mandate binding on SANDAG[.]"This conclusion was consistent with the Court's earlier decision in *Professional Engineers in California Government v. Schwarzenegger* (2010), which held the Governor had acted in excess of his executive authority in ordering the furloughing of state employees as a money-saving strategy. In that earlier case, which is not mentioned in the SANDAG decision, the Court held that the decision to furlough employees was legislative in character, and thus could only be ordered by the Legislature, and not the Governor, who, under the state constitution, may only exercise executive authority. In SANDAG, the Court thus impliedly recognized that Governors do not have authority to set statewide legislative policy, particularly for decades into the future. Even so, however, the Court noted, and did not question, the parties' agreement that "the Executive Order's 2050 emissions reduction target is grounded in sound science." The Court emphasized that, although "the Executive Order 'is not an adopted GHG reduction plan' and that 'there is no legal requirement to use it as a threshold of significance,'" the 2050 goal nevertheless "expresses the pace and magnitude of reduction efforts that the scientific community believes necessary to stabilize the climate.

This scientific information has important value to policymakers and citizens in considering the emission impacts of a project like SANDAG's regional transportation plan." Towards the end of the decision, the Court even referred to "the state's 2050 climate goals" as though the 2050 target from E.O. S-03-05 had some sort of standing under California law. The Court seemed to reason that, because the Legislature had enacted both AB 32 and SB 32, which followed the downward GHG emissions trajectory recommended in the Executive Order, the Legislature, at some point, was also likely to adopt the 2050 target as well: "SB 32 … reaffirms California's commitment to being on the forefront of the dramatic greenhouse gas emission reductions needed to stabilize the global climate." Finally, the Court explained that "planning agencies like SANDAG must ensure that CEQA analysis stays in step with evolving scientific knowledge and state regulatory schemes." In sum, the Court recognized that the Executive Order did not carry the force of law, but nevertheless considered it to be part of "state climate policy" because the Legislature, in enacting both AB 32 and SB 32, seems to be following both the Intergovernmental Panel on Climate Change recommendations for reducing GHG emissions worldwide and evolving science. Nothing in the decision, however, suggests that all projects, regardless of their build-out period, must address the 2050 target or treat it as a significance threshold.

Regional/Local

Association of Bay Area Governments and Metropolitan Transportation Commission - Plan Bay Area

Plan Bay Area: Strategy for a Sustainable Region was adopted in July 2013 and set forth a strategy for development of the Bay Area's transportation infrastructure (Association of Bay Area Governments and Metropolitan Transportation Commission 2013). *Plan Bay Area 2040: Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2017-2040* ("Plan Bay Area 2040") is the strategic update to *Plan Bay Area: Strategy for a Sustainable Region*, and it builds on earlier work to develop an efficient transportation network, provide more housing choices and grow in a financially and environmentally responsible way (Association of Bay Area Governments and Metropolitan Transportation Commission 2017).

Plan Bay Area 2040 fulfills obligations under SB 375, the California Sustainable Communities and Climate Protection Act of 2008, which requires a sustainable communities strategy as a part of the regional transportation plan. The sustainable communities strategy must promote compact, mixed-use commercial and residential development. Two performance targets are mandated by SB 375: reduce its per-capita CO_2 emissions from cars and light-duty trucks by 15 percent by 2040; and provide adequate housing by requiring the region to house 100 percent of its projected population growth by income level. Plan Bay Area 2040 integrates land use strategies by establishing priority development areas, and identifying how the Bay Area can accommodate residential growth through 2040.

Bay Area Air Quality Management District

The air district is charged with managing air quality and greenhouse gas emissions within its boundaries. Regional guidance on GHG emissions is provided in the 2017 CEQA Guidelines and the 2017 Clean Air Plan.

2017 CEQA Guidelines

The air district has published comprehensive guidance on evaluating, determining significance of, and mitigating GHG impacts of projects and plans. The guidance is contained in the 2017 CEQA Guidelines. The 2017 CEQA Guidelines identify three thresholds of significance options for operational-related GHG emissions for land use development projects: 1) compliance with a qualified GHG reduction strategy; 2) annual emissions less than 1,100 MT per year of CO_2e; or 3) emissions below 4.6 MT CO_2e per year per service population (residents + employees).

The air district's thresholds of significance for GHG emissions are based on AB 32 GHG emission reduction goals for the year 2020. The proposed project is expected to be operational by 2022. Therefore, the air district's thresholds do not address GHG emissions reduction needed after 2020 to keep statewide emissions on a path toward meeting the 2030 SB 32 emissions reduction target.

2017 Clean Air Plan

The air district adopted the 2017 Clean Air Plan on April 19, 2017. The 2017 Clean Air Plan defines a vision for achieving ambitious greenhouse gas reduction targets for 2030 and 2050, and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets. The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

There are 85 control measures in the 2017 Clean Air Plan, many of which are applicable only for regional or government implementation. The 2017 Clean Air Plan control measures that address GHG emissions include TR1: Clean Air Teleworking Initiative; TR 2: Trip Reduction Programs; TR19: Medium and Heavy Duty Trucks; TR 22: Construction, Freight, and Farming Equipment; BL1: Green Buildings; BL2: Decarbonize Buildings; BL4: Urban Heat Island Mitigation; and SL1: Short-Lived Climate Pollutants.

City of Gilroy

The city adopted the *City of Gilroy Climate Action Plan* on May 25, 2012. The climate action plan established a citywide emissions reduction goal of 15 percent below 2005 levels by 2020.

The climate action plan is not a qualified GHG reduction plan because the city determined that implementation of some of the GHG reduction measures included in the document may not be feasible and potential environmental impacts associated with implementing the climate action plan were not evaluated. Because the climate action plan is not a qualified GHG reduction plan, the city does not have the ability to use the document to streamline the CEQA analysis of GHG impacts pursuant to CEQA Guidelines Section 15130.5.

3.3 ANALYSIS

GHG Thresholds

The City of Gilroy has not formally adopted a quantified threshold of significance for GHGs and to date, has not adopted a qualified climate action plan. Either of these tools could otherwise be used to determine the significance of climate change impacts of the proposed project. Further, the air district has not adopted thresholds of significance for non-stationary GHG sources needed after 2020 to keep statewide emissions on a path toward meeting the 2030 SB 32 emissions reduction target that could be used as guidance by the city.

In the absence of local guidance, a GHG threshold of significance has been developed for the proposed project. The threshold is a GHG efficiency metric that represents a rate of emissions generation from land use projects. If the proposed project rate of emissions is equal to or below the threshold, project emissions would not conflict with the state's ability to achieve statewide GHG reduction targets embodied in applicable state legislation. As described below, the applicable statewide GHG reduction goal is 40 percent below 1990 levels by 2030 as codified in SB 32.

The SB 32 emissions reduction target is applicable because buildout of the project site is assumed to occur by 2022. Therefore, a threshold is developed for the proposed project below which the project would be consistent with a GHG reduction trajectory towards achieving the SB 32 2030 reduction goals. In summary, lacking local guidance for a quantified threshold of significance, this report relies on the 2030 emissions reduction goal as a basis for crafting a GHG efficiency-based threshold of significance for the proposed project.

Threshold Development Methodology

The threshold methodology responds to the California Supreme Court's ruling in the Newhall Ranch Case. That ruling is described in the California Supreme Court Decisions subsection of the Regulatory Setting section above. More specifically, the methodology addresses the first of the Court's three guidance recommendations regarding potential alternative approaches to GHG impact assessment at the project level for lead agencies:

> The lead agency determination of what level of GHG emission reduction from business-as-usual projection that a new land development at the proposed location would need to achieve to comply with statewide goals upon examination of data behind the Scoping Plan's business-as-usual emission projections. The lead agency must provide substantial evidence and account for the disconnect between the Scoping Plan, which dealt with the state as a whole, and an analysis of an individual project's land use emissions (the same issues with CEQA compliance addressed in this case).

First, the methodology examines the data behind the Scoping Plan's business-as-usual emissions projections. That data is comprised of the 1990 statewide GHG emissions inventory that CARB has previously used to project a statewide emissions reduction target, but is not the target itself. Second, the methodology avoids disconnect between consideration of GHG emissions from all sources in the state as a whole as listed in the 1990 inventory, and analysis of emissions from land use projects. This is achieved by isolating out of the 1990 statewide GHG emissions inventory the GHG sources to which land use sector driven development contributes (e.g. emissions produced by residential development, commercial development, and other similar land development end use types). The threshold of significance derived is; therefore, specific to evaluating the significance of GHG emissions generated solely from land use projects.

Individual land use projects commonly generate GHG emissions from similar sources: mobile, energy, area (e.g. burning natural gas), water, and solid waste. The emissions profiles of common land use projects (e.g. residential, commercial, mixed use, etc.) generally do not vary substantially in terms of the proportions of emissions generated from each of these sources. This is true for land use projects as a class, regardless of their locations within the state. Since climate change is a global phenomenon, the specific location of a land use project within the state is not highly informative as a measure of its potential to contribute to adverse climate change effects. Consequently, the threshold determination methodology focuses on the level of GHG emissions reduction an individual land use project should achieve to comply with statewide goals. As described below, the threshold is represented as a GHG efficiency metric – a rate of emissions the proposed (land use) project must achieve to contribute its "fair share" for meeting statewide goals. This approach is permissible, as the Supreme Court expressed conceptual support for approaches that attempt to ascertain a project's "fair share" of required statewide reductions.

Use of a GHG Emissions Efficiency Metric

A GHG efficiency metric represents a rate of emissions generation. It is the ratio of total GHG emissions to "service population." Service population is the sum of the number of jobs and the number of residents generated by a proposed project. A project that produces a high volume of GHG emissions relative to its service population is less GHG efficient than the

same project that produces a lower volume of GHG emissions when the service population is held constant. Stated in another way, the rate of emissions for the first project exceeds the rate of emissions for the second project.

A GHG efficiency metric can be used to compare the rate of emissions from a particular land use project to the rate of statewide GHG emissions from land use projects at or below which the statewide 2030 emissions reduction goal identified in SB 32 would be achieved. With a reduced rate of emissions per resident and employee, California can accommodate expected population growth and achieve economic development objectives, while also abiding by the SB 32 emissions target. If the rate of GHG emissions from an individual project is equal to or below the statewide rate of GHG emissions from the land use sector, the individual project would not impede the state's ability to achieve the 2030 statewide reduction goal.

Land Use Driven GHG Emissions Projection

The California Air Resources Board stated in the *First Update to the Climate Change Scoping Plan* that an average statewide GHG reduction of 5.2 percent per year from the projected statewide year 2020 GHG emissions inventory volume will be needed to stay on a trajectory to achieve state reduction targets for 2030. The first step in deriving an applicable statewide efficiency metric threshold is to determine the volume of statewide GHG emissions from land use driven sectors in 2022 (the anticipated project buildout year) that must be achieved to stay on trajectory towards meeting the statewide 2030 reduction target of 40 percent below 1990 levels. Land use driven emissions are those from sources that function to support population and employment growth.

Land use driven GHG emissions can be isolated out of the 2020 projected statewide emissions inventory by eliminating emissions sources that are not land use driven and that would not accommodate projected new population or employment growth. For example, emissions associated with ocean transport or agriculture are not related to new land use driven emissions. Conversely, emissions associated with on-road transportation, electricity production, natural gas combustion, wastewater treatment, and solid waste from commercial and residential land uses are land use driven as they contribute to accommodating new population and employment growth.

Table 3-3, 2020 California Greenhouse Gas Inventory for Land Use Driven Emissions, shows the 2020 state emissions inventory for land use driven GHG emissions. Total land use driven emissions are projected at 286.70 MMT CO_2e.

Applying CARB's 5.2 percent annual emissions reduction rate to the 2020 projected state inventory volume of 286.70 MMT CO_2e for two consecutive years yields a projected emissions volume of 257.66 MMT CO_2e in 2022. This is the volume of statewide emissions that must be achieved in 2022 for California to stay on track for meeting the statewide emissions reduction goal for 2030. The 2022 statewide service population is the sum of the

projected statewide 2022 population and projected statewide 2022 employment. The projected 2022 statewide population is 41,110,032 (California Department of Finance 2019). The California Employment Development Department, California Occupational Employment Projections 2016-2026, show that the 2026 employment projection is 20,022,700 jobs (California Employment Development Department 2018). Projected 2022 employment is equivalent to 20,022,700 jobs minus the annual average rate of employment during the period 2016 to 2026, which equals 193,310 jobs per year or 773,240 for the four-year period 2022 to 2026. Therefore, 2022 employment is estimated at 19,249,460 jobs.

Table 3-3 2020 California Greenhouse Gas Inventory for Land Use Driven Emissions

Land Use Type	Emissions (MMT CO_2e)
On-Road Transportation	
Passenger Cars	63.77
Light Duty Trucks	44.75
Motorcycles	0.43
Heavy Duty Trucks	29.03
Freight	0.02
Subtotal	138.00
Electricity Generation In-State	
Commercial Cogeneration	0.70
Merchant Owned	2.33
Transmission and Distribution	1.56
Utility Owned	29.92
Subtotal	34.51
Electricity Generation In-State	
Specified Imports	29.61
Transmission and Distribution	1.02
Unspecified Imports	30.96
Subtotal	61.59
Commercial	
CHP: Commercial	0.40
Communication	0.07
Domestic Utilities	0.34
Education	1.42
Food Services	1.89
Healthcare	1.32
Hotels	0.67

Land Use Type	Emissions (MMT CO_2e)
Not Specified Commercial	5.58
Offices	1.46
Retail & Wholesale	0.68
Transportation Services	0.03
Subtotal	13.86
Residential	
Household Use	29.66
Subtotal	29.66
Industrial	
Landfills	6.26
Domestic Wastewater Treatment	2.83
Subtotal	9.09
Total Emissions	286.70

SOURCE: California Air Resources Board. No date

The 2022 service population is 41,110,032 (population) plus 19,249,460 (jobs), for a total of 60,359,492. The 2022 target GHG efficiency threshold is 257.66 MMT CO_2e/60,359,492 or 4.27 MT CO_2e per service population. This value represents the threshold of significance for the proposed project. This information is summarized in Table 3-4, 2022 Efficiency-Based Threshold below.

Table 3-4 2022 Efficiency-Based Threshold

	Year 2022
Population	41,110,032
Employment	19,249,460
Service Population	60,359,492
Emissions Target	257.66 MMT CO_2e
2022 Threshold	257.66 MMT CO_2e/60,359,492 = 4.27 MT CO_2e/Service Population

SOURCES: California Department of Finance 2019, California Employment Development Department 2018, EMC Planning Group 2019

Project GHG Emissions Inventory

Methodology

Gross annual GHG emissions from the proposed project consist of the sum of amortized construction emissions, operational emissions, and amortized changes in carbon sequestration. Reductions from gross emissions are then taken to account for baseline

conditions and regulatory requirements. The resulting net GHG emissions divided by the project service population are then compared to the threshold. The above-noted GHG emissions sources and reductions are summarized below and included in a table that follows the emissions inventory discussion.

The proposed project will be designed to a LEED Silver certification (or higher) building standard. Emissions reduction from LEED measures were not quantified using CalEEMod, and therefore, the projection of project emissions is considered conservative.

Unmitigated Construction and Operational GHG Emissions Volumes

GHG emissions from construction and operation of the proposed project are estimated using CalEEMod and are summarized in Table 3-5, Total Annual Unmitigated GHG Emissions below. Refer to Appendix A for the detailed CalEEMod modeling results and a memorandum describing the CalEEMod modeling assumptions and methodology, *Gilroy Sports Park Master Plan Phase III Amendments – Air Quality and Greenhouse Gas Emissions Modeling Memorandum*.

Construction Emissions

Construction activity would generate an estimated total of 426.35 MT CO_2e. The air district recommends amortizing the short-term GHG construction emissions over a 30-year time period to yield an annual emissions volume. Averaged over a 30-year operational project lifetime period, the annual amortized emissions equal 14.21 MT CO_2e per year. This amount is a component of the proposed project's annual unmitigated emissions inventory.

Operational Emissions

Annual unmitigated operational GHG emissions are estimated at 1,523.82 MT CO_2e per year.

Carbon Sequestration Potential

Carbon sequestration is the process of removing and storing CO_2 from the atmosphere in carbon sinks (such as oceans, forests, vegetation, or soils) through physical or biological processes, such as photosynthesis. Carbon stored in soils and vegetation is commonly released back to the atmosphere when a land use development project requires existing soils be disturbed and/or existing vegetation with significant sequestration capacity (e.g. mature trees) be removed from a development site. The proposed project would remove approximately 9.1 acres of cropland that is currently present on the project site. Currently, there are no trees on the project site (Google Earth 2019). As indicated in Figure 1-4, Conceptual Master Plan Phase III Site Plan, the proposed project includes planting of 106 new trees.

CalEEMod results indicating the change in carbon sequestration potential on the site are shown in Section 2.3 of the modeling results, included in Appendix A. The model estimates

the net gain in sequestration potential as 18.63 MT CO_2e over the lifetime of the project. Averaged over a 30-year lifetime, the annual gain in sequestration potential would be equivalent to 0.62 MT CO_2e per year (18.63 MT CO_2e / 30 years). This amount is deducted from the project's annual unmitigated GHG emissions.

Total Annual Unmitigated GHG Emissions

Total annual unmitigated GHG emissions are summarized in Table 3-5 below.

Table 3-5 Total Annual Unmitigated GHG Emissions

Emissions Source	Annual Unmitigated GHG Emissions[1]
Amortized Construction	14.21
Unmitigated Operational	1,523.82
Gain in Sequestration Potential[2]	<0.62>
Total	1,537.41

SOURCE: EMC Planning Group 2019
NOTES:
1. Expressed in MT CO_2e per year.
2. <Brackets> indicate deductions.

Baseline GHG Emissions Volume

Baseline GHG emissions are those generated under existing conditions. The project site is currently in row crop production. Operations associated with on-going agricultural activity are a source of GHG emissions that would be eliminated when the site is developed. The primary GHG emissions sources are electricity generation to supply power for pumping irrigation water and fuel combustion in farm equipment. To be conservative and due to uncertainty about the intensity of use, the farm equipment component of baseline emissions activities is not further evaluated.

To estimate GHG emissions volume from electricity generation for water pumping, total annual water demand, electrical energy demand per unit volume of water demand, and a GHG emissions factor per unit of electrical energy demanded for water pumping are needed. The project site is currently and has historically been used to grow tomatoes and/or peppers. According to the 2010 Agricultural Land & Water Use Estimates from the California Department of Water Resources, tomatoes demand approximately 1.86 acre feet of water per acre per year and peppers demand approximately 1.51 acre feet per acre per year. The average annual water demand is approximately 1.69 acre feet per acre. Table 3-6, Existing Agricultural Water Use, presents the estimated existing water use from agricultural activity within the project site.

Table 3-6 Existing Agricultural Water Use

Crop	Acres	Average Water Demand per Acre (acre feet/acre)	Total Agricultural Water Demand (acre feet)
Tomatoes/Peppers	9.1	1.69	15.38

SOURCES: California Department of Water Resources 2010

The typical energy intensity for electricity used to supply, treat, and distribute water in northern California is 3,500 kWh per 1,000,000 gallons of water (California Air Pollution Control Officers Association 2010). Since irrigation water used within the project site is sourced from local wells, the typical energy intensity value is likely lower and assumed to be 2,000 kWh per 1,000,000 gallons of water. Information obtained from utility providers, in this case, Pacific Gas and Electric (PG&E), can be used to estimate electrical demand per unit of water demand and GHG emissions volumes per unit of energy consumed. At an estimated 5,011,419 gallons of annual agricultural water demand (15.38 acre feet x 325,840 gallons/acre foot), agricultural water pumping generates demand for approximately 10.02 megawatt hour of electricity per year. Per PG&E's *Greenhouse Gas Emission Factors Info Sheet*, 0.131 metric tons of CO_2e would be produced for each megawatt hour of electricity produced in 2020. Applying this factor to the existing agricultural water pumping electricity demand yields a GHG emissions baseline of approximately 1.31 MT CO_2e per year.

Regulatory Emissions Reductions

The GHG emissions volume identified in Table 3-5 is the projected volume from buildout of the proposed project, including GHG reductions that accrue from several State regulatory and legislative actions that are built into CalEEMod such as the Pavley I standards and Low Carbon Fuel Standards. Adjustments were made to CalEEMod to account for additional applicable regulations and actions including, the MWELO and the 2019 BEES. The regulatory reductions are estimated as 37.72 MT CO_2e per year. Refer to Appendix A for modeling results and assumptions regarding these additional regulatory emissions reductions.

Project Service Population

The project service population is the sum of the new population and employment it generates. The proposed project will not generate new population as it does not include residential uses. The proposed project is expected to generate approximately 133 new jobs (Jon Gustafson, email message, October 15, 2019). This represents the project service population.

Comparison of Statewide and Project-Based GHG Efficiency Metrics for 2022

Table 3-7, Project GHG Emissions and Service Population Summary, presents the project-based GHG emissions rate and compares it to the threshold of significance of 4.27 MT CO_2e per year per service population shown in Table 3-4.

Table 3-7 Project GHG Emissions and Service Population Summary

Emission Source	Annual GHG Emissions MT CO_2e per year
Amortized Construction	14.21
Annual Unmitigated Operational	1,523.82
Sequestration Potential (gain)	<0.62>
Total Annual Unmitigated	1,537.41
Baseline Reductions	<1.31>
Regulatory Reductions	<37.72>
Net Annual GHG Emissions	1,498.38
Service Population	133
Net Annual GHG Emissions Per Service Population	11.27
Annual Threshold Per Service Population	4.27
Project Emissions Exceed Threshold?	Yes

SOURCE: EMC Planning Group 2019
NOTES: <Brackets> indicate deductions.

From Table 3-7, the annual forecasted rate of GHG emissions of 11.27 MT CO_2e per year per service population exceeds the threshold of significance by 7.00 MT CO_2e per year per service population. Therefore, the proposed project would generate GHG emissions that would have a significant impact on the environment.

3.4 CONCLUSION

As shown in Table 3-7, the proposed project rate of GHG emissions exceeds the threshold developed for the proposed project. Consequently, its impact from generation of GHG emissions is significant. As a result, the project also conflicts with SB 32, the applicable GHG reduction plan.

A mitigation measure will be included in the CEQA document to ensure project GHG emissions are reduced to below the threshold of 4.27 MT CO_2e per year per service population. The mitigation measure will be structured to require the applicant to implement

either one or all of the following options: incorporate on-site GHG reduction measures into the project, participate in an off-site GHG reduction program(s), and/or purchase carbon off-sets.

The proposed project will be built to a minimum LEED Silver certification building standard. Representative measures in the LEED program that would reduce GHG emissions include, but are not limited to, renewable energy production, advanced metering, optimized energy performance, enhanced commissioning, enhanced refrigerant management, green power and carbon offsets, indoor water use reduction, outdoor water use reduction, access to quality transit, and storage and collection of recyclables. As a result, the proposed project is already incorporating on-site GHG emissions reduction measures. The project applicant should prepare a Greenhouse Gas Reduction Plan that identifies the proposed reduction measures, GHG emissions reductions volumes associated with each, and provides evidence to support the level of reduction calculated for each. The Greenhouse Gas Reduction Plan would be subject to review and approval of city staff prior to approval of a grading permit.

If the project applicant chooses to participate in an off-site GHG reduction project or program, evidence of such participation should be provided to the City of Gilroy by the agency/interest that is implementing the project or program. Evidence should describe how the applicant is participating, the expected GHG reduction volume that can be assigned to the project as a result of the applicant's participation, and verification that the applicant has met participation requirements. The evidence would be subject to review and approval of city staff prior to issuance of a grading permit.

If the project applicant chooses to purchase carbon off-sets solely or in combination with the other option above, the project applicant should provide evidence to the City of Gilroy that a contract for such purchase has been executed through a credible carbon off-set registry such as the Climate Action Reserve, a certified carbon off-set project developer, or a broker. The evidence would be subject to review and approval of city staff prior to issuance of a grading permit.

Even with the implementation of recommended mitigation measure, the proposed project will incrementally contribute to cumulative global warming effects, which include increases in air, surface, and ocean temperatures that in turn could have effects that include, but are not limited to: reduced snowpack, more frequent and extreme storm events, reduced water supply availability, increased wildfire hazards, increased public health concerns, etc.

4.0
Energy

4.1 Environmental Setting

PG&E is the primary purveyor of electricity and natural gas in the City of Gilroy. PG&E operates a major network of electricity and natural gas transmission lines within its service area, including the city.

For more than a decade, federal, state, and regional energy agencies and energy providers have been focused on reducing growth in fossil-fuel based energy demand, especially in the form of transportation fuels and electricity. Key environmental goals have been established to reduce air pollutants and GHGs. As a result, investments in a range of transportation technology, energy efficiency and energy conservation programs and technologies to improve transportation fuel efficiency have been increasing, as has the focus on land use planning as a tool to reduce vehicle trips/lengths and transportation related energy use.

4.2 Regulatory Setting

Energy efficiency, energy conservation, and transportation fuel efficiency (through vehicle trip reduction and improved mileage) goals of the federal and state governments are embodied in many federal, state, and local statutes and policies. Representative state energy efficiency and conservation, and transportation energy demand guidance, regulations, and legislation are summarized below. Additional related regulations and legislation are found in Section 3.0, Greenhouse Gas Emissions.

California Energy Commission

The California Energy Commission is California's primary energy policy and energy planning agency. Created by the California Legislature in 1974, the California Energy Commission has five major responsibilities: 1) forecasting future energy needs and keeping historical energy data; 2) licensing thermal power plants 50 megawatts or larger; 3) promoting energy efficiency through appliance and building standards; 4) developing energy technologies and supporting renewable energy; and 5) planning for and directing state response to energy emergencies. Under the requirements of the California Public Resources Code, the California Energy Commission, in conjunction with the Department of Conservation's Division of Oil, Gas, and Geothermal Resources, is required to assess

electricity and natural gas resources on an annual basis or as necessary. The Systems Assessment and Facilities Siting Division of the California Energy Commission provides coordination to ensure that needed energy facilities are authorized in an expeditious, safe, and environmentally acceptable manner.

California 2008 Energy Action Plan Update

The state adopted the Energy Action Plan in 2003, followed by the Energy Action Plan II in 2005. The current plan, the California 2008 Energy Action Plan Update, is California's principal energy planning and policy document. The updated document examines the state's ongoing actions in the context of global climate change, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy resources are adequate, affordable, technologically advanced, and environmentally sound. The California 2008 Energy Action Plan Update establishes energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods) as the first-priority actions to address California's increasing energy demands. Additional priorities include the use of renewable sources of power and distributed generation (e.g., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy demand and transmission capacity needs, clean and efficient fossil-fired generation is supported. The California 2008 Energy Action Plan Update examines policy changes in the areas of energy efficiency, demand response, renewable energy, electricity reliability and infrastructure, electricity market structure, natural gas supply and infrastructure, research and development, and climate change (California Energy Commission 2008).

California Building Codes

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were first established in 1978 to reduce California's energy consumption. The California Energy Code is updated every three years by the California Energy Commission as the Building Energy Efficiency Standards (BEES) to allow consideration and possible incorporation of new energy efficiency technologies and construction methods. In May 2018, the California Energy Commission adopted the 2019 BEES that go into effect on January 1, 2020. The 2019 BEES are structured to achieve the state's goal that all new low-rise residential buildings (single-family and multi-family homes) be zero net energy. Single-family homes built with the 2019 BEES will use about seven percent less energy due to energy efficiency measures versus those built under the 2016 BEES. Non-residential buildings will use about 30 percent less energy due mainly to lighting upgrades (California Energy Commission 2018).

The Green Building Standards Code (also known as CALGreen), which requires all new buildings in the state to be more energy efficient and environmentally responsible, took

effect in January 2011 and was most recently updated in January 2016. These comprehensive regulations are intended to achieve major reductions in interior and exterior building energy consumption.

Energy Efficiency Act of 2006 (AB 2021)

This bill encourages all investor-owned and municipal utilities to aggressively invest in achievable, cost-effective, energy efficiency programs in their service territories.

California Assembly Bill No. 1493 ("Pavley I Rule")

AB 1493 was enacted on July 22, 2002. It requires the CARB to develop and adopt regulations that improve fuel efficiency of vehicles and light-duty trucks. Pavley I requirements apply to these vehicles in the model years 2009 to 2016.

Advanced Clean Cars

In January 2012, CARB adopted an Advanced Clean Cars program, which is aimed at increasing the number of plug-in hybrid cars and zero-emission vehicles in the vehicle fleet and on making fuels such as electricity and hydrogen readily available for these vehicle technologies.

Renewable Energy Legislation/Orders

The California Renewable Portfolio Standard Program, which requires electric utilities and other entities under the jurisdiction of the California Public Utilities Commission to meet 20 percent of their retail sales with renewable power by 2017, was established by SB 1078 in 2002. The renewable portfolio standard was accelerated to 20 percent by 2010 by SB 107 in 2006. The program was subsequently expanded by the renewable electricity standard approved by CARB in September 2010, requiring all utilities to meet a 33 percent target by 2020. The Legislature then codified this mandate in 2011 with the enactment of Senate Bill X1-2. SB 350, adopted in September 2015, increases the standard to 50 percent by 2030. This same legislation includes statutes directing the California Energy Commission and Public Utilities Commission to regulate utilities producing electricity so that they will create electricity-generation capacity sufficient for the widespread electrification of California's vehicle fleet, as a means of reducing GHG emissions associated with the combustion of gasoline and other fossil fuels. The Legislature envisions a dramatic increase in the sales and use of electric cars, which will be recharged with electricity produced with increasingly cleaner power sources.

On September 10, 2018, former Governor Brown signed into law SB 100 and Executive Order B-55-18. SB 100 raises California's Renewable Portfolio Standard requirement to 50 percent

renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. Executive Order B-55-18 establishes a carbon neutrality goal for California by 2045, and sets a goal to maintain net negative emissions thereafter.

4.3 ANALYSIS

Project Energy Consumption

The three primary sources of long-term energy consumption from the proposed project will be use of vehicle fuel, natural gas, and electricity. Each of these energy consumption sources is described below.

Transportation Fuel

As the number of vehicle miles traveled (VMT) by fossil fuel powered vehicles increases, consumption of vehicle fuels increases. However, the rate of increase has been declining over time in California by continuing improvements in vehicle fuel efficiency, increases in the percentage of the vehicle fleet comprised of zero emissions vehicles, and technological advances in the formulation and deployment of alternative fuels.

The proposed project will generate new employee traffic trips that increase VMT. CalEEMod results included in Appendix A show that the annual VMT would be 2,924,007 miles. New employee vehicle trips will result in increased demand for and consumption of transportation fuel.

The Emissions Factor Model (EMFAC2017) version 1.0.2 was used to forecast transportation fuel demand based on the projected annual VMT. Transportation fuel demand is forecast at 183.32 gallons per year. The EMFAC2017 model results are included in Appendix B.

Electricity

According to the California Energy Commission Energy Consumption Data Management System, in 2018, total electricity consumption in Santa Clara County was 16,668,160,600 kWh. Section 5.3, Energy by Land Use – Electricity, in the CalEEMod results in Appendix A show that the electricity demand at buildout of the proposed project would be approximately 835,780 kWh/year. Electricity consumption at project buildout would be less than 0.01 percent of the total 2018 Santa Clara County electricity consumption.

The proposed project will be built to a minimum LEED Silver certification building standard. Representative measures in the LEED program that would reduce energy consumption include, but are not limited to, renewable energy production, advanced metering, optimized energy performance, enhanced commissioning, enhanced refrigerant management, and green power carbon offsets.

Natural Gas

According to the California Energy Commission Energy Consumption Data Management System, in 2018, total natural gas consumption in Santa Clara County was 440,030,822 therms. Table 5.2 Energy by Land Use – Natural Gas, in the CalEEMod results in Appendix A shows that the natural gas demand at buildout of the proposed project would be approximately 2,046,700 kBTU/year (20,471.89 therms/year). This is less than 0.01 percent of Santa Clara County's total 2018 natural gas demand.

The proposed facility will be designed to a LEED Silver certification (or higher) building standard, which will result in reduced energy consumption.

4.4 CONCLUSION

A multitude of state regulations and legislative acts are aimed at improving vehicle fuel efficiency, energy efficiency, and enhancing energy conservation. For example, in the transportation sector, the representative legislation and standards for improving transportation fuel efficiency include the Pavley I standards. The gradual increased usage of electric cars powered with cleaner electricity will also reduce fossil fuel usage associated with transportation. In the renewable energy use sector, representative legislation for the use of renewable energy includes, but is not limited to Senate Bill 350 and Executive Order B-16-12. In the building energy use sector, representative legislation and standards for reducing natural gas and electricity consumption include, but are not limited to Assembly Bill 2021, CALGreen, and Title 24 building standards. The City of Gilroy enforces the California Building Code Standards through the development process.

As discussed above, the proposed project would represent a small fraction of Santa Clara County's long-term energy consumption. The proposed facility will be designed to a LEED Silver certification (or higher) building standard, which will further reduce electricity and/or natural gas consumption. The project includes common sources of energy use and demand. Conformance with applicable energy conservation/efficiency regulations and standards would ensure that key elements of the project are energy efficient. Given these factors, the proposed project does not directly or indirectly result in inefficient, wasteful, and unnecessary consumption of energy.

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