APPENDIX C

AIR QUALITY IMPACT ANALYSIS

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SCREENCHECK DRAFT

AIR QUALITY IMPACT ANALYSIS

SOUTHERN LAS TRAMPAS LAND USE PLAN AMENDMENT

EAST BAY REGIONAL PARK DISTRICT

LSA

October 2018

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AIR QUALITY IMPACT ANALYSIS

SOUTHERN LAS TRAMPAS LAND USE PLAN AMENDMENT

EAST BAY REGIONAL PARK DISTRICT

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LIST OF ABBREVIATIONS AND ACRONYMS

$\mu g/m^3$	micrograms per cubic meter
AAQS	Ambient Air Quality Standards
AB 197	Assembly Bill 197
AB 32	Assembly Bill 32 (2006 California Global Warming Solutions Act)
AQIA	Air Quality Impact Analysis
ARB	California Air Resources Board
BAAQMD	Bay Area Air Quality Management District
CalEPA	California Environmental Protection Agency
CAP	Climate Action Plan
CAT	Climate Action Team
CEQA	California Environmental Quality Act
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalents
EBRPD	East Bay Regional Park District
GDP	gross domestic product
GHGs	greenhouse gases
GWP	Global Warming Potential
HFCs	hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
LOS	levels of service
LUDP	Las Trampas Regional Wilderness Land Use Development Plan

LUPA	Land Use Plan Amendment
mg/m^3	milligrams per cubic meter
MMT	million metric tons
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
O_3	ozone
Pb	lead
PFCs	perfluorocarbons
PM_{10}	respirable particulate matter
ppb	parts per billion
ppm	parts per million
ROG	reactive organic gases
SAP	Sustainability Action Plan
SB 32	Senate Bill 32 (California Global Warming Solutions Act of 2016)
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
USEPA	United States Environmental Protection Agency
VMT	vehicle miles traveled

AIR QUALITY IMPACT ANALYSIS

INTRODUCTION

LSA Associates, Inc. (LSA) has completed an Air Quality Impact Analysis (AQIA) for the proposed Southern Las Trampas Wilderness Regional Preserve (Las Trampas) Land Use Plan Amendment (LUPA) Project (project) within the East Bay Regional Park District (EBRPD or Park District). The LUPA would formally incorporate approximately 760 acres from five parcels into Las Trampas, which would expand the amount of open parkland in Las Trampas to a total of approximately 4,876 acres. The project is in the southern portion of Las Trampas in south-central Contra Costa County, on the western periphery of the San Ramon Valley within the City of San Ramon, Town of Danville, and unincorporated areas. A project overview map is included in Figure 1.

This AQIA has been prepared using methods and assumptions recommended in the *CEQA Air Quality Guidelines* of the Bay Area Air Quality Management District (BAAQMD).[1] In keeping with these guidelines, this analysis describes existing air quality, potential impacts generated by the project on local carbon monoxide (CO) levels, emissions generated from project-related sources, and regional air pollution. An air quality emission analysis was conducted using the California Emissions Estimator Model version 2016.3.2 (CalEEMod) to assess the potential air quality emissions associated with construction and operation of the project.

PROJECT DESCRIPTION

Project Goals and Objectives

The 2018 LUPA would serve as an amendment to the 1993 Las Trampas Land Use Development Plan. The main purposes of the 2018 LUPA are to:

- Formally append and open approximately 760 acres within five parcels into Las Trampas: Chen, Elworthy, Peter's Ranch, Faria, Podva;
- Evaluate one new staging area off of Bollinger Canyon Road located on the Chen parcel. The District is considering two locations for the staging area; however the Chen parcel is the District's preferred location. Therefore, this analysis focuses on the Chen parcel location for the proposed staging area;
- Evaluate two six-car trailhead lots off of Bollinger Canyon Road located on the Faria parcel; and
- Evaluate approximately 4.5 miles of proposed trail connections including defining final trail alignments, appropriate trail use and routine maintenance requirements.

The LUPA would be consistent with the District's guiding policy document, the 2013 Master Plan[2], which provides for the preparation of land use plans to: direct the long-term development and

[1] Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.
[2] East Bay Regional Park District, 2013. *2013 Master Plan*. July 16.

management of individual parks; identify major facility development; and establish appropriate land use designations in accordance with the vision of the Park District.

The LUPA would serve as a supplement to the Las Trampas Regional Wilderness Land Use Development Plan (LUDP) adopted in November 1993, and the Las Trampas Regional Wilderness Resource Analysis adopted in August 1991. The Resource Analysis described and analyzed important natural and man-made resources in the parklands and identified resource and land planning issues for the LUDP. The LUDP provided policies and implementation measures for Las Trampas Regional Wilderness, Little Hills Regional Recreation Area, and the western end of the Las Trampas to Mount Diablo Regional Trail. The Peter's Ranch parcel acquired prior to the 1993 LUDP was briefly mentioned in the LUDP as the southern non-contiguous parcel.

Project Background

The project area is known for its steep topography and diverse natural resources. The steep and rugged hills with their many side ridges and valleys create a complex habitat for native species and provide a challenging experience for park visitors. The geographical center of the project area is Las Trampas Ridge, which rises 700 feet above Bollinger Canyon Road. In addition to the rugged topography, the project area includes numerous rock outcrops.

The project area consists of five parcels that would be appended to Las Trampas and includes three that the District currently owns: Peter's Ranch, Chen, and Elworthy. The Elworthy parcel is currently open to the public, and park visitors can access the Elworthy parcel from a 0.5-mile trail connector through a 182-acre Elworthy private property scenic easement. A 12-car staging area on the Elworthy scenic easement was constructed by the developer prior to District acceptance of the Elworthy parcel, and was opened to the public in 2015. The Peter's Ranch and Chen parcels are currently landbanked and are not open to the public.

Two additional parcels, Podva and Faria, would be dedicated to the District as mitigation for residential development projects. Thirty acres of the 96-acre Podva parcel would be under a conservation easement. The developer is providing to the District an approximately one-mile trail through the Podva parcel that connects to trails within Las Trampas, as well as a trailhead with on-street parking.

The entire 144-acre Faria dedication would be under conservation easement, with the exception of a trail connector to the Calaveras Ridge Trail, a trail loop on the western portion, and carve-outs for two six-car trailhead parking areas, which would be set aside for the District to develop additional public access points in the future. The long-term management plans associated with the conservation easements placed on these properties would be incorporated and referenced in the LUPA.

A project overview map is included in Figure 2 and the Chen Staging Area is shown in Figure 3.

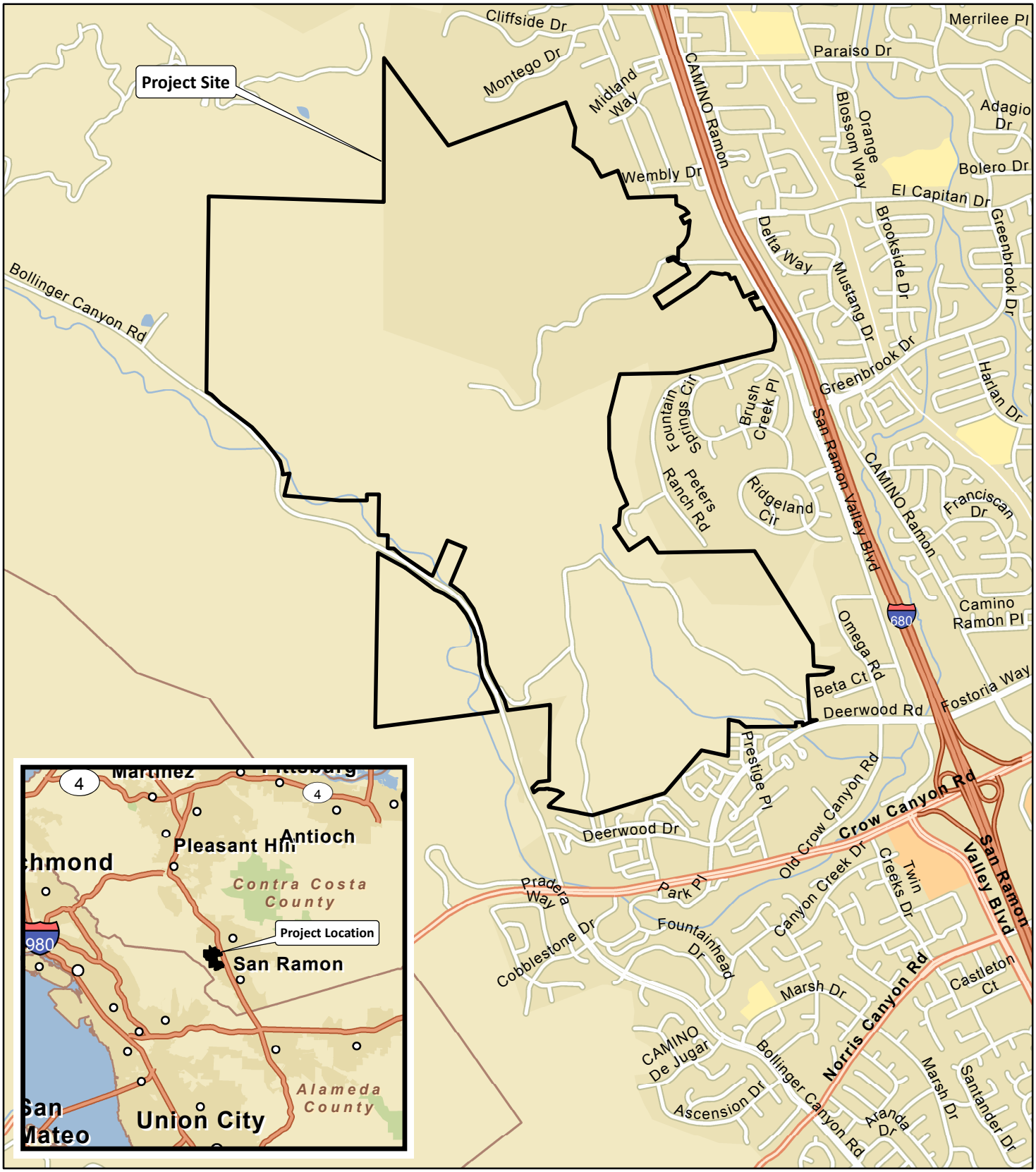

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FIGURE 1

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SOURCE: ESRI StreetMap North America (2012).

I:\EBR1702\GIS\Maps\Figure 1_Project Location and Regional Vicinity Map.mxd (12/21/2017)

Las Trampas LUPA Tech Studies

Project Location and Regional Vicinity Map

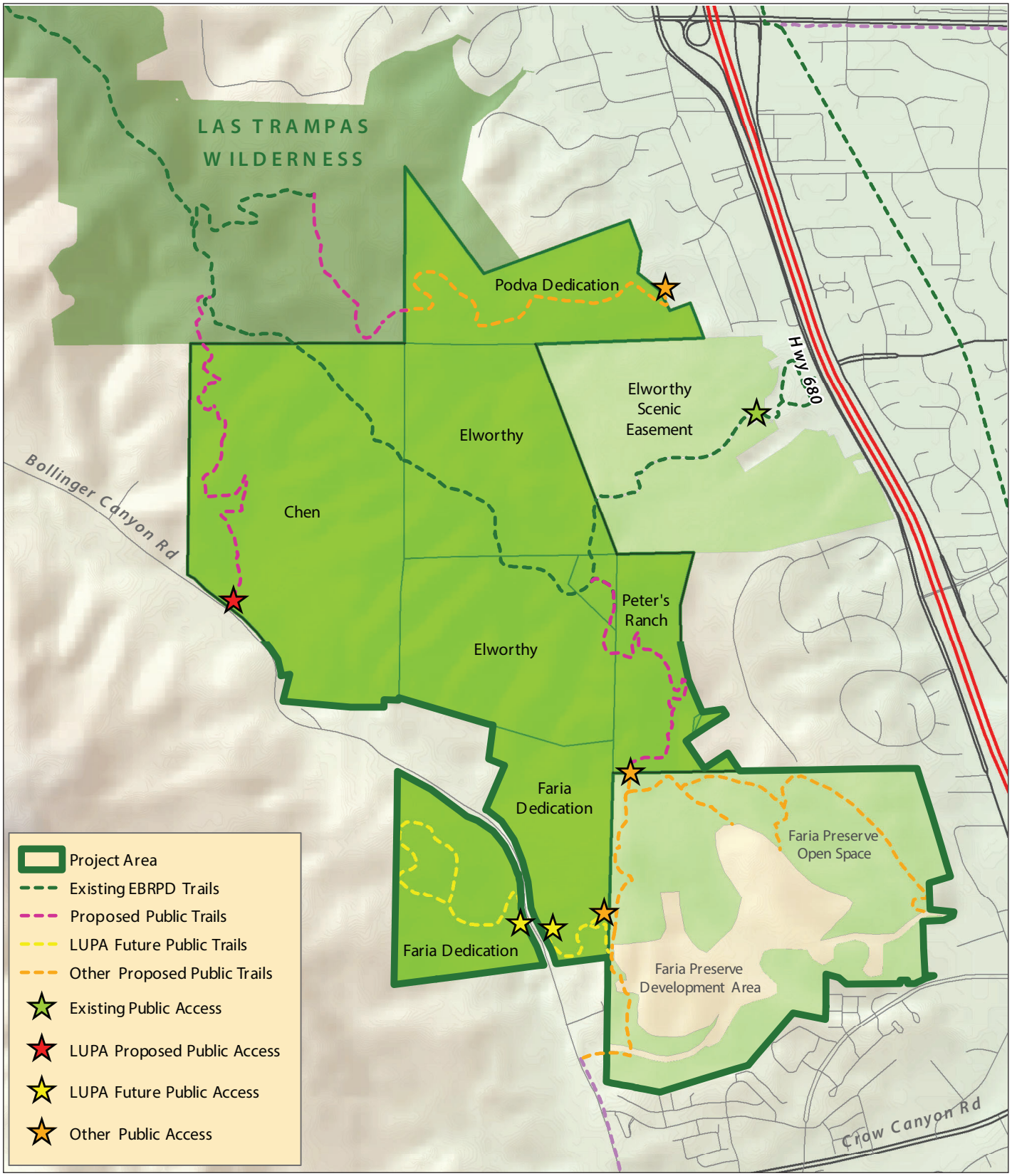

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FIGURE 2

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Las Trampas LUPA Tech Studies
Overview Map

SOURCE: EBRPD, AUGUST 2018.

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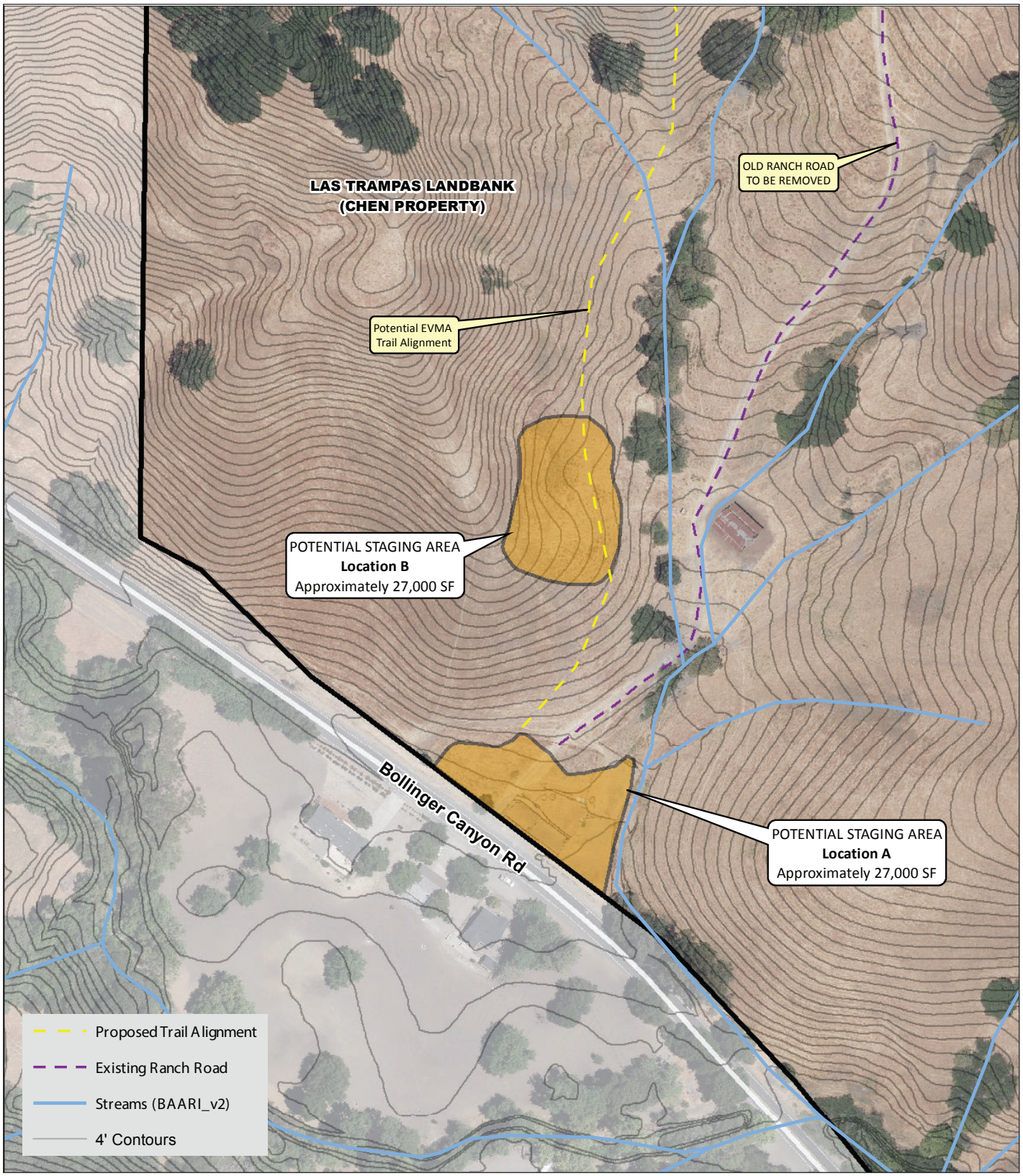

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FIGURE 3

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Las Trampas LUPA Tech Studies
Chen Staging Area

SOURCE: EBRPD, AUGUST 2018.

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Proposed Project

The project proposes to open to the public approximately two miles of narrow (single-track) trails and 2.5 miles of emergency vehicle and maintenance access (EVMA) roads for a total of approximately 4.5 miles of new trails. New trail construction would involve the use of mechanized equipment, such as a mini excavators and manual labor using hand tools.

The proposed project would divide the project area into natural and recreation/staging units, as defined by the District's 2013 Master Plan. The proposed project would designate the vast majority of the project area as a natural unit in which the land would remain undeveloped with the exception of recreational trails. Public infrastructure would be concentrated in the remaining land comprising of one staging area and two small trailhead lots. Proposed project elements would include the following actions:

- Develop a staging area on the Chen property to serve as the southern gateway to Las Trampas, with all-weather, compacted gravel parking to accommodate up to 25 vehicles, benches, restroom, trail connections, information signs and landscaping. The District is considering two locations for the staging area; however this location is preferred. Therefore, this analysis focuses on this location for the proposed staging area;

- Develop one 1.1-mile access road to allow pedestrian, bicycle, equestrian and maintenance and emergency vehicle access into Las Trampas from existing roads and trails and connecting to Bollinger Canyon Road via the Chen property;

- Develop one 0.5-mile access road to allow pedestrian, bicycle, equestrian and maintenance and emergency vehicle access into Las Trampas from the Podva property;

- Develop one 0.8-mile narrow trail segment of the Calaveras Ridge Trail on the Peter's Ranch property, connecting future City of San Ramon public trails on an adjacent property to existing trails on the Elworthy property;

- Develop two small parking trailhead areas to accommodate up to six cars on the Faria parcel with fencing, gates, and signs stating park regulations and hours; and

- Develop two trails to allow pedestrian, bicycle and equestrian access into Las Trampas from the six-car trailhead lots.

SUMMARY OF FINDINGS

This AQIA found that construction and operation of the proposed project would not result in the generation of criteria air pollutants that would exceed BAAQMD thresholds of significance. In addition, GHG emissions released during construction and operation of the project are estimated to be lower than significance thresholds, and would not be cumulatively considerable. The proposed project would not result in significant air quality or GHG impacts.

AIR QUALITY BACKGROUND

This section provides background information on air pollutants and their health effects. It also provides brief information from the California Air Resources Board's *Air Quality and Land Use Handbook*[3] (ARB Handbook) and the supplement; *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways: Technical Advisory*,[4] a brief description of the general health risks of toxics, and the CEQA significance criteria for project evaluation.

Air Pollutants and Health Effects

Both State and federal governments have established health-based Ambient Air Quality Standards (AAQS) for six criteria air pollutants:[5] carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and suspended particulate matter (PM). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Two criteria pollutants, O_3 and NO_2, are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, SO_2, and Pb are considered local pollutants that tend to accumulate in the air locally.

The primary pollutants of concern in the project area are O_3, CO, and PM. Significance thresholds established by an air district are used to manage total regional and local emissions within an air basin based on the air basin's attainment status for criteria pollutants. These emission thresholds were established for individual development projects that would contribute to regional and local emissions and could adversely affect or delay the Air Basin's projected attainment target goals for nonattainment criteria pollutants.

Because of the conservative nature of the significance thresholds, and the basin-wide context of individual development project emissions, there is no direct correlation between a single project and localized air quality-related health effects. One individual project that generates emissions exceeding a threshold does not necessarily result in adverse health effects for residents in the project vicinity. This condition is especially true when the criteria pollutants exceeding thresholds are those with regional effects, such as ozone precursors like nitrogen oxides (NO_x) and reactive organic gases (ROG).

Occupants of facilities such as schools, daycare centers, parks and playgrounds, hospitals, and nursing and convalescent homes are considered to be more sensitive than the general public to air pollutants because these population groups have increased susceptibility to respiratory disease. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality.

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3 California Air Resources Board, 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* April.

4 California Air Resources Board, 2017. *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways: Technical Advisory.*

5 Criteria pollutants are defined as those pollutants for which the Federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

Residential areas are considered more sensitive to air quality conditions, compared to commercial and industrial areas, because people generally spend longer periods of time at their residences, with greater associated exposure to ambient air quality conditions. Recreational uses are also considered sensitive compared to commercial and industrial uses due to greater exposure to ambient air quality conditions associated with exercise.

Ozone (O_3)

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x. The main sources of ROG and NO_x, often referred to as ozone precursors, are combustion processes (including combustion in motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide (CO)

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles. CO transport is limited - it disperses with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels that adversely affect local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Extremely high levels of CO, such as those generated when a vehicle is running in an unventilated garage, can be fatal.

Particulate Matter (PM)

Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from manmade and natural sources. Particulate matter is categorized in two size ranges: PM_{10} for particles less than 10 microns in diameter and $PM_{2.5}$ for particles less than 2.5 microns in diameter. In the Bay Area, motor vehicles generate about half of the air basin's particulates, through tailpipe emissions as well as brake pad, tire wear, and entrained road dust. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of such fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. According to the California Air Resources Board (ARB), studies in the United States and elsewhere have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, asthma attacks, and studies of children's health in California have demonstrated that particle pollution may significantly reduce lung function growth in children. The ARB also reports that statewide attainment of particulate matter standards could prevent thousands of premature deaths, lower hospital admissions for cardiovascular and respiratory disease and

asthma-related emergency room visits, and avoid hundreds of thousands of episodes of respiratory illness in California.[6]

Nitrogen Dioxide (NO_2)

NO_2 is a reddish brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, NO_2 also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2 may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. NO_2 decreases lung function and may reduce resistance to infection.

Sulfur Dioxide (SO_2)

SO_2 is a colorless acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease. SO_2 also reduces visibility and the level of sunlight at the ground surface.

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. 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 factories. Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the United States Environmental Protection Agency (USEPA) established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The USEPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the USEPAs regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. Some examples of TACs include: benzene, butadiene, formaldehyde, and hydrogen sulfide. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs do not have ambient air quality standards, but are regulated by the USEPA and ARB. In 1998, ARB identified particulate matter from diesel-fueled engines as a toxic air contaminant. ARB has completed a risk management process that identified potential cancer risks for a range of activities and land uses that are

[6] California Air Resources Board, 2011. *Fact Sheets*. Website: www.arb.ca.gov/html/brochure/pm10.htm October.

characterized by use of diesel-fueled engines.[7] High volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truck stops) were identified as posing the highest risk to adjacent receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, high volume transit centers, and schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

The BAAQMD regulates TACs using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated, and considered together with information regarding the toxic potency of the substances, in order to provide a quantitative estimate of health risks.[8] As part of ongoing efforts to identify and assess potential health risks to the public, the BAAQMD has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Bay Area. Monitoring data and emissions inventories of TACs help the BAAQMD determine health risk to Bay Area residents.

Ambient monitoring concentrations of TACs indicate that pollutants emitted primarily from motor vehicles (1,3-butadiene and benzene) account for slightly over 50 percent of the average calculated cancer risk from ambient air in the Bay Area.[9] According to the BAAQMD, ambient benzene levels declined dramatically in 1996 with the advent of Phase 2 reformulated gasoline. Due to this reduction, the calculated average cancer risk based on monitoring results has been reduced to 143 in 1,000,000; however, this risk does not include the risk resulting from exposure to diesel particulate matter or other compounds not monitored.

Unlike TACs emitted from industrial and other stationary sources noted above, most diesel particulate matter is emitted from mobile sources – primarily "off-road" sources such as construction and mining equipment, agricultural equipment, and truck-mounted refrigeration units, as well as trucks and buses traveling on freeways and local roadways. Agricultural and mining equipment is not commonly used in urban parts of the Bay Area, while construction equipment typically operates for a limited time at various locations. As a result, the readily identifiable locations where diesel particulate matter is emitted in the Bay Area include high-traffic roadways and other areas with substantial truck traffic.

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7 California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. Available online at www.arb.ca.gov/diesel/factsheets/rrpfactsheet.pdf (accessed December 27, 2017). October.

8 In general, a health risk assessment is required if the BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggests a potential public health risk. Such an assessment generally evaluates chronic, long term effects, including the increased risk of cancer as a result of exposure to one or more TACs.

9 Bay Area Air Quality Management District, 2013. *Toxic Air Contaminant Control Program Annual Report 2013 Volume 1.* Website: www.baaqmd.gov/research-and-data/air-toxics/annual-report (accessed December 27, 2017). May.

Although not specifically monitored, recent studies indicate that exposure to diesel particulate matter may contribute significantly to a cancer risk (a risk of approximately 500 to 700 in 1,000,000) that is greater than all other measured TACs combined.[10] The ARB's Diesel Risk Reduction Plan is intended to substantially reduce diesel particulate matter emissions and associated health risks through introduction of ultra-low-sulfur diesel fuel – a step already implemented – and cleaner-burning diesel engines. The technology for reducing diesel particulate matter emissions from heavy-duty trucks is well established, and both State and federal agencies are moving aggressively to regulate engines and emission control systems to reduce and remediate diesel emissions. ARB anticipates that by 2020 average statewide diesel particulate matter concentrations will decrease by 85 percent from levels in 2000 with full implementation of the Diesel Risk Reduction Plan, meaning that the Statewide health risk from diesel particulate matter is expected to decrease from 540 cancer cases in 1,000,000 to 21.5 cancer cases in 1,000,000. It is likely that the Bay Area cancer risk from diesel particulate matter will decrease by a similar factor by 2020.

Table 1: Sources and Health Effects of Air Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust • Natural events, such as decomposition of organic matter	• Reduced tolerance for exercise • Impairment of mental function • Impairment of fetal development • Death at high levels of exposure • Aggravation of some heart diseases (angina)
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust • High temperature stationary combustion • Atmospheric reactions	• Aggravation of respiratory illness • Reduced visibility • Reduced plant growth • Formation of acid rain
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight	• Aggravation of respiratory and cardiovascular diseases • Irritation of eyes • Impairment of cardiopulmonary function • Plant leaf injury
Lead (Pb)	• Contaminated soil	• Impairment of blood functions and nerve construction • Behavioral and hearing problems in children
Suspended Particulate Matter ($PM_{2.5}$ and PM_{10})	• Stationary combustion of solid fuels • Construction activities • Industrial processes • Atmospheric chemical reactions	• Reduced lung function • Aggravation of the effects of gaseous pollutants • Aggravation of respiratory and cardiorespiratory diseases • Increased cough and chest discomfort • Soiling • Reduced visibility
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels • Smelting of sulfur-bearing metal ores Industrial processes	• Aggravation of respiratory diseases (asthma, emphysema) • Reduced lung function • Irritation of eyes • Reduced visibility • Plant injury • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board (2015).

[10] Ibid.

Table 2: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]		Federal Standards[b]		
		Concentration[c]	Method[d]	Primary[c,e]	Secondary[c,f]	Method[g]
Ozone (O3)[h]	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[i]	24-Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		–		
Fine Particulate Matter (PM2.5)[i]	24-Hour	-		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	–	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (NO2)[j]	Annual Arithmetic Mean	0.03 ppm (57 µg/m^3)	Gas Phase Chemi-luminescence	53 ppb (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemi-luminescence
	1-Hour	0.18 ppm (339 µg/m^3)		100 ppb (188 µg/m^3)	-	
Lead (Pb)[l,m]	30-Day Average	1.5 µg/m^3	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m^3 (for certain areas)[l]	Same as Primary Standard	
	Rolling 3-Month Average[i]	–		0.15 µg/m^3		
Sulfur Dioxide (SO2)[k]	24-Hour	0.04 ppm (105 µg/m^3)	Ultraviolet Fluorescence	0.14 ppm (for certain areas)	–	Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method)
	3-Hour	–		–	0.5 ppm (1300 µg/m^3)	
	1-Hour	0.25 ppm (655 µg/m^3)		75 ppb (196 µg/m^3)[k]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[k]	–	
Visibility-Reducing Particles[l]	8-Hour	See footnote n	Beta Attenuation and Transmittance through Filter Tape.	No Federal Standards		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[j]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Table notes are provided on the following page.

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

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

[c] 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.

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

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

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

[g] Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.

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

[i] On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24- hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

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

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

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

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

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

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

°C = degrees Celsius
ARB = California Air Resources Board
USEPA = United States Environmental Protection Agency
ppb = parts per billion
ppm = parts per million
mg/m^3 = milligrams per cubic meter
$\mu g/m^3$ = micrograms per cubic meter

Source: California Air Resources Board, 2016. https://www.arb.ca.gov/research/aaqs/aaqs2.pdf

Greenhouse Gases and Global Climate Change

Global climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. The Earth's average near-surface atmospheric temperature rose 0.6 ± 0.2° Celsius (°C) or 1.1 ± 0.4° Fahrenheit (°F) in the 20th century. The prevailing scientific opinion on climate change is that most of the warming observed over the last 50 years is attributable to human activities. The increased amounts of carbon dioxide (CO_2) and other greenhouse gases (GHGs) are the primary causes of the human-induced component of warming. GHGs are released by the burning of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect.[11]

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF_6)

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, and enhancing the natural greenhouse effect, which is believed to be causing global warming. While manmade GHGs include naturally-occurring GHGs such as CO_2, methane, and N_2O, some gases, like HFCs, PFCs, and SF_6 are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this air quality analysis, the term "GHGs" will refer collectively to the six gases listed above only.

[11] The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse lets heat from sunlight in and reduces the heat escaping, greenhouse gases like carbon dioxide, methane, and nitrous oxide in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, although an excess of greenhouse gas results in global warming, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each greenhouse gas to trap heat in the atmosphere relative to another gas. The global warming potential is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to carbon dioxide, the most abundant GHG; the definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e). Table 3 shows the GWP for each type of GHG. For example, sulfur hexafluoride is 22,800 times more potent at contributing to global warming than carbon dioxide.

Table 3: Global Warming Potential of Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-Year Time Horizon)
Carbon Dioxide	50-200	1
Methane	12	25
Nitrous Oxide	114	298
HFC-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF_4)	50,000	7,390
PFC: Hexafluoromethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

Source: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC* (Intergovernmental Panel on Climate Change, 2007).

The following discussion summarizes the characteristics of the six GHGs and black carbon.

Carbon Dioxide (CO_2)

In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals and plants, volcanic out gassing, decomposition of organic matter and evaporation from the oceans. Human caused sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. Natural sources release approximately 150 billion tons of CO_2 each year, far outweighing the 7 billion tons of man-made emissions of CO_2 each year. Nevertheless, natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of man-made CO_2, and consequently, the gas is building up in the atmosphere.

In 2012, CO_2 emissions from fossil fuel combustion accounted for approximately 94 percent of U.S. CO_2 emissions and approximately 86.5 percent of California's overall GHG emissions (CO_2e) from 2000-2012. The transportation sector accounted for California's largest portion of CO_2 emissions, with gasoline consumption making up the greatest portion of these emissions. Electricity generation was California's second largest category of GHG emissions.

Methane (CH_4)

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH_4 emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation, manure management, and rice cultivation are also significant sources of CH_4 in California. Methane accounted for approximately 7.2 percent of gross climate change emissions (CO_2e) in California from 2000-2014.[12]

Total annual emissions of methane are approximately 500 million tons, with manmade emissions accounting for the majority. As with CO_2, the major removal process of atmospheric methane—a chemical breakdown in the atmosphere—cannot keep pace with source emissions, and methane concentrations in the atmosphere are increasing.

Nitrous Oxide (N_2O)

Nitrous oxide is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. Nitrous oxide is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit N_2O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in California. Nitrous oxide emissions accounted for approximately 2.9 percent of man-made greenhouse gas emissions (CO_2e) in California, 2000-2012. [13]

Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur Hexafluoride (SF_6)

Hydrofluorocarbons are primarily used as substitutes for ozone-depleting substances regulated under the Montreal Protocol.[14] Perfluorocarbons and SF_6 are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs. Hydrofluorocarbons, PFCs, and SF_6 accounted for about 4.1 percent of man-made greenhouse gas emissions (CO_2e) in California, 2000-2012. [15]

Black Carbon

Black carbon is the most strongly light-absorbing component of PM formed by burning fossil fuels such as coal, diesel, and biomass. Black carbon is emitted directly into the atmosphere in the form of

12 Ibid.
13 Ibid.
14 The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion.
15 Ibid.

$PM_{2.5}$ and is the most effective form of PM, by mass, at absorbing solar energy. Per unit of mass in the atmosphere, black carbon can absorb a million times more energy than CO_2.[16] Black carbon contributes to climate change both directly, such as absorbing sunlight, and indirectly, such as affecting cloud formation. However, because black carbon is short-lived in the atmosphere, it can be difficult to quantify its effect on global-warming.

Most U.S. emissions of black carbon come from mobile sources (52 percent), particularly from diesel fueled vehicles. The other major source of black carbon is open biomass burning, including wildfires, although residential heating and industry also contribute. The ARB estimates that the annual black carbon emissions in California have decreased approximately 70 percent between 1990 and 2010 and are expected to continue to decline significantly due to controls on mobile diesel emissions.

Air Quality Regulatory Setting

The USEPA and the California ARB regulate direct emissions from motor vehicles. The BAAQMD is the regional agency primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as monitoring ambient pollutant concentrations.

Federal Clean Air Act

The 1970 Federal Clean Air Act authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The Federal Clean Air Act Amendments of 1990 changed deadlines for attaining national standards as well as the remedial actions required of areas of the nation that exceed the standards. Under the Clean Air Act, State and local agencies in areas that exceed the national standards are required to develop State Implementation Plans to demonstrate how they will achieve the national standards by specified dates.

California Clean Air Act

In 1988, the California Clean Air Act required that all air districts in the State endeavor to achieve and maintain CAAQS for carbon monoxide, ozone, sulfur dioxide and nitrogen dioxide by the earliest practical date. The California Clean Air Act provides districts with authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each nonattainment district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan (CAP) shows how a district would reduce emissions to achieve air quality standards. Generally, the State standards for these pollutants are more stringent than the national standards.

[16] U.S. Environmental Protection Agency, 2015. *Black Carbon*. Website: www3.epa.gov/blackcarbon/basic.html (accessed on May 18, 2017). September.

California Air Resources Board (ARB) Handbook

The California ARB has developed an Air Quality and Land Use Handbook[17] which is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. According to the ARB Handbook, recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. The ARB Handbook recommends that county and city planning agencies strongly consider proximity to these sources when finding new locations for "sensitive" land uses such as homes, medical facilities, daycare centers, schools and playgrounds.

Land use designations with air pollution sources of concern include freeways, rail yards, ports, refineries, distribution centers, chrome plating facilities, dry cleaners and large gasoline service stations. Key recommendations in the ARB Handbook include taking steps to avoid siting new, sensitive land uses:

- Within 500 feet of a freeway, urban roads with 100,000 vehicles/day or rural roads with 50,000 vehicles/day;
- Within 1,000 feet of a major service and maintenance rail yard;
- Immediately downwind of ports (in the most heavily impacted zones) and petroleum refineries;
- Within 300 feet of any dry cleaning operation (for operations with two or more machines, provide 500 feet); and
- Within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater).

The ARB Handbook specifically states that its recommendations are advisory and acknowledges land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

The recommendations are generalized and do not consider site specific meteorology, freeway truck percentages or other factors that influence risk for a particular project site. The purpose of the land use compatibility analysis is to further examine the project site for actual health risk associated with the location of new housing on the project site.

[17] California Air Resources Board, 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* April.

Bay Area Air Quality Management District

The BAAQMD has jurisdiction over most air quality matters in the San Francisco Bay Area Air Basin. The BAAQMD is tasked with implementing certain programs and regulations required by the Federal Clean Air Act and the California Clean Air Act. The BAAQMD prepares plans to attain State and national ambient air quality standards.

The Clean Air Plan guides the region's air quality planning efforts to attain the CAAQS. The BAAQMD 2017 Clean Air Plan, which was adopted on April 19, 2017 by the BAAQMD Board of Directors, is the current Clean Air Plan which contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO_x), particulate matter and greenhouse gas emissions.

The Bay Area 2017 Clean Air Plan:

- Describes the Air District's plan towards attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among bay area communities;
- Defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas reduction targets for 2030 and 2050;
- Provides a regional climate protection strategy that will put the Bay area on a pathway to achieve GHG reduction targets; and
- Includes a wide range of control measures designed to decrease emissions of 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.

East Bay Regional Parks District

Master Plan. The EBRPD's 2013 Master Plan[18] contains policies for achieving the highest standards of service in resource conservation, management, interpretation, public access, and recreation. The goal of the Master Plan is to maintain a careful balance between the need to protect and conserve resources and the need to provide opportunities for recreational use of the parklands. The Master Plan also contains the following policies relating to providing parking and trailheads at convenient locations, which are applicable to the proposed project. In addition, the Master Plan contains the following policies that support the ability of visitors to use alternative modes of transportation.

- Policy RM1b: The District will specifically track and monitor the effects of climate change on its resources, interceding when necessary to relocated or protect in-situ resources that are being degraded or lost by this shift in the environment.

[18] East Bay Regional Parks District, 2013. *East Bay Regional Park District Master Plan 2013.* July 16.

- Policy PA4: The District will provide access to parklands and trails to suit the level of expected use. Where feasible, the District will provide alternatives to parking on or use of neighborhood streets. The District will continue to advocate and support service to the regional park system by public transit.

- Policy PA5: The District will cooperate with local and regional planning efforts to create more walkable and bikeable communities, and coordinate park access opportunities with local trails and bike paths developed by other agencies to promote green transportation access to the Regional Parks and Trails.

- Policy RFA2: The District will provide a diverse system of non-motorized trails to accommodate a variety of recreational users including hikers, joggers, people with dogs, bicyclists, and equestrians. Both wide and narrow trails will be designed and designated to accommodate either single or multiple users based on location, recreational intensity, environmental, and safety considerations. The District will focus on appropriate trail planning and design, signage, and trail user education to promote safety and minimize conflicts between users.

- Policy RFA3: The District will continue to add narrow trails designated as both single- and multi-use for hikers, equestrians, dog walkers, and bike riders throughout the system of regional parklands.

- Policy RFA4: The District will expand its unpaved multi-use trail system as additional acreage and new parks are added. The District will continue to provide multi-use trails to link parks and to provide access to park visitor destinations.

- Policy RFA5: The District will continue to plan for and expand the system of paved, multi-use regional trails connecting parklands and major population centers.

Contra Costa County

Contra Costa County addresses air quality in the Conservation Element of the General Plan.[19] Goals, policies, and implementation measures included in the Conservation Element are designed to achieve desired improvements to air quality through proper planning for land use and transportation. Policies relevant to this project include the following:

- Policy 8-101: A safe, convenient and effective bicycle and trail system shall be created and maintained to encourage increased bicycle use and walking as alternatives to driving.

- Policy 8-102: A safe and convenient pedestrian system shall be created and maintained in order to encourage walking as an alternative to driving.

- Policy 8-103: When there is a finding that a proposed project might significantly affect air quality, appropriate mitigation measures shall be imposed.

[19] Contra Costa, County, of, 2010. *Contra Costa County General Plan 2005 – 2020.* July.

- Policy 8-104: Proposed projects shall be reviewed for their potential to generate hazardous air pollutants.

- Policy 8-105: Land uses which are sensitive to air pollution shall be separated from sources of air pollution.

- Implementation Measure 8-dl: Review major development applications for consistency with regional air quality plan assumptions.

- Implementation Measure 8-dp: Review proposed development to encourage maximum use of bicycle, pedestrian and transit modes of transportation.

City of San Ramon

The City of San Ramon addresses air quality in the Air Quality and Greenhouse Gas chapter of the General Plan.[20] Policies listed in the Air Quality and Greenhouse Gas Element are designed to cooperate with regional agencies and private companies, encourage smart growth, support transit oriented development, promote multimodal transit and complete streets, support pedestrian-oriented development, and provide facilities that encourage bicycling. Policies relevant to this project include the following:

- Implementing Policy 12.4-I-3: Analyze the air quality and climate change impacts of discretionary projects using applicable regulatory guidance; for example, the BAAQMD's CEQA Air Quality Guidelines.

- Implementing Policy 12.4-I-4: Use the City's environmental review process to impose appropriate mitigation measures on new development to reduce air quality and greenhouse gas emissions impacts.

- Implementing Policy 12.5-I-1: Minimize air quality and climate change impacts through project review, evaluation, and conditions of approval when planning the location and design of land use projects and transportation system projects needed to accommodate expected City population growth.

- Implementing Policy 12.6-I-3: Require construction and grading activities to incorporate particulate emissions reduction measures.

- Implementing Policy 12.7-I-4: Provide information to encourage the use of transportation modes that minimize motor vehicle use and the resulting air pollution and greenhouse gas emissions.

- Implementing Policy 12.7-I-5: Construct and promote infrastructure and facilities that support and encourages the use of low-emission transportation and alternative modes of travel,

[20] San Ramon, City of, 2015. *City of San Ramon General Plan 2035.* April 28.

including a safe and comprehensive bicycle and pedestrian system that connects all parts of the City.

Town of Danville

The Town of Danville addresses air quality in the Resources and Hazards Element of the General Plan.[21] Goals, policies, and implementation measures contained in the Resources and Hazards Element aim to reduce local air pollution in an effort to limit health hazards, maintain a quality living environment, and achieve regional air quality improvements. Policies relevant to this project include the following:

- Policy 33.01: Make land use and transportation decisions which promote walking and bicycling, and help to sustain public transportation.
- Policy 33.04: During the development review process, impose appropriate mitigation measures on new development to reduce greenhouse gas emissions.
- Policy 34.02: Consider air pollution impacts during the local development review process. Development should be located and regulated to minimize the emission of direct and indirect air contaminants.
- Policy 34.03: Implement appropriate controls and "best practice" requirements on construction and grading activities to minimize airborne dust and other particulate matter.
- Policy 34.05: Ensure that future non-residential developments are evaluated through the CEQA process and/or the BAAQMD permit process to ensure that they do not result in a significant health risk.

Global Climate Change Regulation

This section describes regulations related to Global Climate Change at the federal, State, and local level.

Federal Regulations

The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the USEPA has the authority to regulate CO_2 emissions under the federal Clean Air Act. While there currently are no adopted federal regulations for the control or reduction of GHG emissions, the USEPA commenced several actions in 2009 to implement a regulatory approach to global climate change.

This includes the 2009 USEPA final rule for mandatory reporting of GHGs from large GHG emission sources in the United States. Additionally, the USEPA Administrator signed an endangerment finding action in 2009 under the Clean Air Act, finding that six GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, SF_6)

[21] Danville, Town of, 2013. *The Town of Danville 2030 General Plan*. March 19.

constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to global climate change, leading to national GHG emission standards.

State Regulations

The ARB is the lead agency for implementing climate change regulations in the State. Since its formation, the ARB has worked with the public, the business sector, and local governments to find solutions to California's air pollution problems. Key efforts by the State are described below.

Executive Order S-3-05 (2005). Governor Arnold Schwarzenegger signed Executive Order S-3-05 on June 1, 2005, which proclaimed that California is vulnerable to the impacts of climate change. The executive order declared that increased temperatures could reduce snowpack in the Sierra Nevada Mountains, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established California's GHG emissions reduction targets, which established the following goals:

- GHG emissions should be reduced to 2000 levels by 2010;
- GHG emissions should be reduced to 1990 levels by 2020; and
- GHG emissions should be reduced to 80 percent below 1990 levels by 2050.

The Secretary of the California Environmental Protection Agency (CalEPA) is required to coordinate efforts of various State agencies in order to collectively and efficiently reduce GHGs. A biannual progress report must be submitted to the Governor and State Legislature disclosing the progress made toward GHG emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, the coastline, and forestry, and report possible mitigation and adaptation plans to address these impacts.

The Secretary of CalEPA leads this Climate Action Team (CAT) made up of representatives from State agencies as well as numerous other boards and departments. The CAT members work to coordinate statewide efforts to implement global warming emission reduction programs and the State's Climate Adaptation Strategy. The CAT is also responsible for reporting on the progress made toward meeting the Statewide GHG targets that were established in the executive order and further defined under Assembly Bill 32, the "Global Warming Solutions Act of 2006" (AB 32). The first CAT Report to the Governor and the Legislature was released in March 2006, which it laid out 46 specific emission reduction strategies for reducing GHG emissions and reaching the targets established in the Executive Order. The CAT Report to the Governor and Legislature and will be updated and issued every two years thereafter; the most recent was released in December 2010.

Assembly Bill 32 (2006), California Global Warming Solutions Act. California's major initiative for reducing GHG emissions is AB 32, passed by the State legislature on August 31, 2006. This effort aims at reducing GHG emissions to 1990 levels by 2020. In response to AB 32, California began to address climate change by employing a comprehensive, long-term approach to cut the State's GHG emissions to 1990 levels by 2020 and to maintain and continue reductions post 2020.

AB 32 requires the ARB to prepare a Scoping Plan that outlines the main State strategies for meeting the emission reduction targets and to reduce GHGs that contribute to global climate change. Pursuant to AB 32, the Scoping Plan must "*identify and make recommendations on direct emission reduction measures, alternative compliance mechanisms, market-based compliance mechanisms, and potential monetary and nonmonetary incentives*" in order to achieve the 2020 goal, and achieve "*the maximum technologically feasible and cost-effective GHG emission reductions*" by 2020 and maintain and continue reductions beyond 2020.

The Initial Scoping Plan in 2008 presented the first economy-wide approach to reducing emissions and highlighted the value of combining both carbon pricing with other complementary programs to meet California's 2020 GHG emissions cap while ensuring progress in all sectors. The coordinated set of policies in the Initial Scoping Plan employed strategies tailored to specific needs, including market-based compliance mechanisms, performance standards, technology requirements, and voluntary reductions. The Initial Scoping Plan also described a conceptual design for a cap-and-trade program that included eventual linkage to other cap-and-trade programs to form a larger regional trading program.

AB 32 requires ARB to update the scoping plan at least every five years. The First Update to the Scoping Plan (First Update), approved in 2014, presented an update on the program and its progress toward meeting the 2020 limit. It also developed the first vision for the long-term progress that the State endeavors to achieve. In doing so, the First Update laid the groundwork to transition to the post-2020 goals set forth in Executive Orders S-3-059 and B-16-2012.10 It also recommended the need for a 2030 mid-term target to establish a continuum of actions to maintain and continue reductions, rather than only focusing on targets for 2020 or 2050.

Senate Bill 32, California Global Warming Solutions Act of 2016, and Assembly Bill 197. In summer 2016 the Legislature passed, and the Governor signed, Senate Bill 32 (SB 32) and Assembly Bill 197 (AB 197). SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Governor Brown's April 2015 Executive Order B-30-15. SB 32 builds on AB 32 and keeps us on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels, consistent with an Intergovernmental Panel on Climate Change (IPCC) analysis of the emissions trajectory that would stabilize atmospheric GHG concentrations at 450 parts per million carbon dioxide equivalent (CO_2e) and reduce the likelihood of catastrophic impacts from climate change.

The companion bill to SB 32, AB 197, provides additional direction to ARB on the following areas related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 meant to provide easier public access to air emissions data that are collected by ARB was posted in December 2016.

Contra Costa County. Contra Costa County adopted a Climate Action Plan (CAP) on December 15, 2015.[22] The CAP is designed to demonstrate the County's commitment to addressing the County's commitment to addressing the challenges of climate change by reducing local GHG emissions while improving community health. This CAP identifies how the County will achieve the AB 32 GHG emissions reduction target of 15 percent below baseline levels by the year 2020, in addition to supporting other public health, energy efficiency, water conservation, and air quality goals identified in the County's General Plan and other policy documents. In addition to reducing GHG emissions, the CAP includes GHG reduction measures and actions to reduce GHG emissions from community-wide sources that relate to energy efficiency, renewable energy, land use and transportation, solid waste, water conservation, and government operations.

City of San Ramon. The City of San Ramon adopted a CAP on August 23, 2011, as its primary strategy for ensuring that the buildout of the General Plan 2030 will not conflict with the implementation of AB 32. AB 32 requires California to reduce statewide greenhouse gas emissions to 1990 levels by the year 2020. This CAP is designed to reduce community related and City operations related greenhouse gas emissions to a degree that would not hinder or delay implementation of AB 32.

This CAP identifies how the City of San Ramon will achieve the AB 32 GHG emissions reduction target of 15 percent below baseline levels by the year 2020, in addition to supporting other public health, energy efficiency, water conservation, and air quality goals identified in the County's General Plan and other policy documents. In addition to reducing GHG emissions, the CAP includes GHG reduction measures and actions to reduce GHG emissions from community-wide sources.

Town of Danville. The Town of Danville adopted a Sustainability Action Plan (SAP) on March 19, 2013, as its primary strategy for ensuring that the buildout of the General Plan 2030 to encourage more environmentally sustainable practices in Danville, to help reach emission reduction targets that were adopted through AB 32 in 2006. AB 32 requires California to reduce statewide greenhouse gas emissions to 1990 levels by the year 2020. The SAP is designed to reduce community related and County operations related greenhouse gas emissions to a degree that would not hinder or delay implementation of AB 32.

This SAP identifies how the County will achieve the AB 32 GHG emissions reduction target of 15 percent below baseline levels by the year 2020, in addition to supporting other public health, energy efficiency, water conservation, and air quality goals identified in the County's General Plan and other policy documents. In addition to reducing GHG emissions, the CAP includes GHG reduction measures and actions to reduce GHG emissions from community-wide sources.

ENVIRONMENTAL SETTING

Attainment Status

The ARB is required to designate areas of the State as attainment, nonattainment or unclassified for all State standards. An *attainment* designation for an area signifies that pollutant concentrations did

[22] Contra Costa, County of, 2015. *Contra Costa County Climate Action Plan*. December 15.

not violate the standard for that pollutant in that area. A *nonattainment* designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An *unclassified* designation signifies that data does not support either an attainment or nonattainment status. The California Clean Air Act divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The USEPA also designates areas as attainment, nonattainment, or classified. Table 4 provides a summary of the attainment status for the San Francisco Bay Area with respect to national and State ambient air quality standards.

Existing Climate and Air Quality

Contra Costa County lies east of the San Pablo Bay, bounded by Alameda County to the south, San Joaquin County to the east, and Solano and Sacramento counties to the north.

Temperatures in and around the San Ramon and Diablo Valleys are warm in the summer and cool in the winter, largely because of their distance from the moderating effect of water bodies and because the California Coast Range blocks marine air flow into the valleys. The Carquinez Strait region remains temperate due to its proximity to water and oceanic air flows. In winter, average daily temperatures are mild, with tule fog common at night. Average summer temperatures are typically mild overnight and warm during the day, with cooler temperatures and stronger winds more common along the western coast. Wind speeds are generally low throughout the region and winds typically blow from northwest to southwest. However, strong afternoon gusts are common in the northern portion of the county around the Carquinez Strait. Annual rainfall averages between 18 and 23 inches across the county.[23]

[23] Bay Area Air Quality Management District, 2016. *Contra Costa County Climate*. April 25.

Table 4: San Francisco Bay Area Basin Attainment Status

	Averaging Time	California Standards [a]		National Standards [b]	
		Concentration	Attainment Status	Concentration [c]	Attainment Status
Ozone (O_3)	8-Hour	0.070 ppm (137µg/m^3)	Nonattainment [h]	0.075 ppm	Nonattainment [d]
	1-Hour	0.09 ppm (180 µg/m^3)	Nonattainment	Not Applicable	Not Applicable [e]
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Attainment [f]
	1-Hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen Dioxide (NO_2)	1-Hour	0.18 ppm (339 µg/m^3)	Attainment	0.100 ppm	Unclassified
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Not Applicable	0.053 ppm (100 µg/m^3)	Attainment
Sulfur Dioxide (SO_2)	24-Hour	0.04 ppm (105 µg/m^3)	Attainment	0.14 ppm (365 µg/m^3)	Attainment
	1-Hour	0.25 ppm (655 µg/m^3)	Attainment	0.075 ppm (196 µg/m^3)	Attainment
	Annual Arithmetic Mean	Not Applicable	Not Applicable	0.030 ppm (80 µg/m^3)	Attainment [j]
Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	Nonattainment [g]	Not Applicable	Not Applicable
	24-Hour	50 µg/m^3	Nonattainment	150 µg/m^3	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	Nonattainment [g]	15 µg/m^3	Attainment
	24-Hour	Not Applicable	Not Applicable	35 µg/m^3 [i]	Nonattainment

Source: Bay Area Attainment Status (Bay Area Air Quality Management District, 2017).

[a] California standards for ozone, carbon monoxide (except in the Lake Tahoe air basin), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter – PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on average. The Lake Tahoe CO standard is 6.0 ppm, a level one-third the national standard and two-thirds the State standard.

[b] National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than 1. The 8-hour ozone standard is attained when the 3-year average of the fourth highest daily concentrations is 0.075 ppm (75 ppb) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m^3. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3. Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially-designed clusters of sites falls below the standard.

[c] National air quality standards are set by USEPA at levels determined to be protective of public health with an adequate margin of safety.

[d] In June 2004, the Bay Area was designated as a marginal nonattainment area for the national 8-hour ozone standard. USEPA lowered the national 8-hour ozone standard from 0.80 to 0.75 PPM (i.e., 75 ppb), effective May 27, 2008.

Table notes continued on next page.

[e] The national 1-hour ozone standard was revoked by USEPA on June 15, 2005.
[f] In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
[g] In June 2002, ARB established new annual standards for $PM_{2.5}$ and PM_{10}.
[h] The 8-hour California ozone standard was approved by the ARB on April 28, 2005 and became effective on May 17, 2006.
[i] On January 9, 2013, USEPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This USEPA rule suspends key SIP requirement as long as monitoring data continues to show that the Bay Area attains the standard. Despite this USEPA action, the Bay Area will continue to be designated as nonattainment for the national 24-hour $PM_{2.5}$ standard until such time as the Air District submits a redesignation request and a maintenance plan to USEPA and USEPA approves the proposed redesignation.
[j] On June 2, 2010, the USEPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 National Ambient Air Quality Standards (NAAQS), however, must be used until one year following USEPA initial designations of the new 1-hour SO_2 NAAQS.

Lead (Pb) is not listed in the above table because it has been in attainment since the 1980s.
ppm = parts per million
mg/m^3 = milligrams per cubic meter
$\mu g/m^3$ = micrograms per cubic meter

Ozone and fine particle pollution, or $PM_{2.5}$, are the major regional air pollutants of concern in the San Francisco Bay Area. Ozone is primarily a problem in the summer, and fine particle pollution in the winter. Ozone and $PM_{2.5}$ infrequently exceed health standards in the portion of Contra Costa County west of the East Bay hills. The San Francisco Bay keeps air temperatures above freezing in winter and well below 100 degrees on even the warmest summer days.[24]

In eastern Contra Costa County, summer afternoon temperatures frequently approach triple digits, spurring ozone levels to exceed health standards. In winter, $PM_{2.5}$ can be transported westward through the Carquinez Strait from the Central Valley where it adds to wood smoke, causing health standards to be exceeded.[25]

Air quality is a function of both local climate and local sources of air pollution. Air quality is the balance of the natural dispersal capacity of the atmosphere and emissions of air pollutants from human uses of the environment. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen dramatically. Exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Ozone levels, measured by peak concentrations and the number of days over the State 1-hour standard, have declined substantially as a result of aggressive programs by the BAAQMD and other regional, State and federal agencies. The reduction of peak concentrations represents progress in improving public health; however the Bay Area still exceeds the State standard for 1-hour ozone as well as the State and federal 8-hour standards. Levels of PM_{10} have exceeded State standards two of the last three years, and the area is considered a nonattainment area for this pollutant relative to the State standards. The Bay Area is an unclassified area for the federal PM_{10} standard.

[24] Ibid.
[25] Ibid.

No exceedances of the State or federal CO standards have been recorded at any of the region's monitoring stations since 1991. The Bay Area is currently considered a maintenance area for State and federal CO standards.

Air Quality Monitoring Results

Air quality monitoring stations are located throughout the nation and maintained by the local air pollution control district and state air quality regulating agencies. Ambient air data collected at permanent monitoring stations are used by the USEPA to identify regions as attainment or nonattainment depending on whether the regions met the requirements stated in the primary National Ambient Air Quality Standards (NAAQS). Attainment areas are required to maintain their status through moderate, yet effective air quality maintenance plans. Nonattainment areas are imposed with additional restrictions as required by the USEPA. In addition, different classifications of attainment such as marginal, moderate, serious, severe, and extreme are used to classify each air basin in the state on a pollutant-by-pollutant basis. Different classifications have different mandated attainment dates and are used as guidelines to create air quality management strategies to improve air quality and comply with the NAAQS by the attainment date. A region is determined to be unclassified when the data collected from the air quality monitoring stations do not support a designation of attainment or nonattainment, due to lack of information, or a conclusion cannot be made with the available data.

Pollutant monitoring results for the years 2014 to 2016 at the San Ramon 9885 Alcosta Boulevard ambient air quality monitoring station (the closest monitoring station to the project site) and where data were not available in San Ramon, the Concord 2975 Treat Boulevard are shown in Table 5. Based on the monitoring data, air quality in Contra Costa County has generally been good. As indicated in the monitoring results, one violation of the 1-hour State ozone standard was recorded in 2015 and 2016. The State 8-hour ozone standard was exceeded four times in 2014, six times in 2015, and twice in 2016. In addition, the federal 8-hour ozone standard was exceeded four times in 2014, six times in 2015, and once in 2016. The CO, PM_{10}, $PM_{2.5}$, NO_2, and SO_2 standards were not exceeded in this area during the 3-year period.

Greenhouse Gas Emissions Inventory

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of greenhouse gases is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, United States, California, and local greenhouse gas emission inventories.

Global Emissions

Worldwide net emissions (including the effects of land use and forestry) of greenhouse gases in 2010 were 46 billion metric tons[26] of CO_2e per year.[27] This represents a 35 percent increase from 1990.

[26] A metric ton is equivalent to approximately 1.1 tons.

Table 5: Ambient Air Quality at the San Ramon 9885 Alcosta Boulevard Monitoring Station

Pollutant	Standard	2014	2015	2016
Carbon Monoxide (CO)[a]				
Maximum 1-hour concentration (ppm)		1.4	1.4	1.2
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		1.1	1.3	1.0
Number of days exceeded:	State: > 9 ppm	0	0	0
	Federal: > 9 ppm	0	0	0
Ozone (O_3)				
Maximum 1-hour concentration (ppm)		0.086	0.106	0.101
Number of days exceeded:	State: > 0.09 ppm	0	1	1
Maximum 8-hour concentration (ppm)		0.077	0.085	0.083
Number of days exceeded:	State: > 0.07 ppm	4	6	2
	Federal: > 0.08 ppm	4	6	1
Coarse Particulates (PM_{10})[a]				
Maximum 24-hour concentration (µg/m^3)		42.5	24.0	19.0
Number of days exceeded:	State: > 50 µg/m^3	0	0	0
	Federal: > 150 µg/m^3	0	0	0
Annual arithmetic average concentration (µg/m^3)		14.1	13.1	11.5
Exceeded for the year:	State: > 20 µg/m^3	0	0	0
	Federal: > 50 µg/m^3	0	0	0
Fine Particulates ($PM_{2.5}$)[a]				
Maximum 24-hour concentration (µg/m^3)		30.6	31.0	20.7
Number of days exceeded:	Federal: > 35 µg/m^3	0	0	0
Annual arithmetic average concentration (µg/m^3)		6.7	8.8	6.1
Exceeded for the year:	State: > 12 µg/m^3	0	0	0
	Federal: > 12 µg/m^3	0	0	0
Nitrogen Dioxide (NO_2)				
Maximum 1-hour concentration (ppm)		0.037	0.037	0.026
Number of days exceeded:	State: > 0.250 ppm	0	0	0
Annual arithmetic average concentration (ppm)		ND	ND	ND
Exceeded for the year:	Federal: > 0.053 ppm	ND	ND	ND
Sulfur Dioxide (SO_2)[a]				
Maximum 1-hour concentration (ppm)		0.0029	0.00067	0.0011
Number of days exceeded:	State: > 0.25 ppm	0	0	0
Maximum 3-hour concentration (ppm)		ND	ND	ND
Number of days exceeded:	Federal: > 0.50 ppm	ND	ND	ND
Maximum 24-hour concentration (ppm)		0.00045	0.0002	0.00024
Number of days exceeded:	State: > 0.04 ppm	0	0	0
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.00045	0.000052	0.000077
Exceeded for the year:	Federal: > 0.030 ppm	No	No	No

Source: USEPA, 2017.

[a] Data taken from the Concord – 2975 Treat Boulevard ambient air quality monitoring station

ppm = parts per million; µg/m^3 = micrograms per cubic meter; ND = No data. There was insufficient (or no) data to determine the value.

[27] U.S. Environmental Protection Agency, 2017. *Inventory of U.S. Greenhouse Gas Emissions and Sinks. 1990-2015.* Available online at: www.epa.gov/sites/production/files/2017-02/documents/2017_complete_report.pdf (accessed December 27, 2017).

United States Emissions

In 2015, the United States emitted about 6.5 billion metric tons of CO_2e or about 21 metric tons per year per person. The total 2015 CO_2e emissions represent a 3.5 percent increase since 1990 but a 10 percent decrease since 2005. Of the six major sectors nationwide – residential, commercial, agricultural, industry, transportation, and electricity generation – electricity generation accounts for the highest amount of greenhouse gas emissions (approximately 29 percent), with transportation second at 27 percent; these emissions are generated entirely from direct fossil fuel combustion.[28]

State of California Emissions

The ARB is responsible for developing the California Greenhouse Gas Emission Inventory. This inventory estimates the amount of greenhouse gases emitted to and removed from the atmosphere by human activities within the State and supports the AB 32 Climate Change Program.

According to ARB emission inventory estimates, California emitted approximately 441.5 million metric tons of CO_2e emissions in 2014.[29] This represents an overall decrease of 9.4 percent since peak levels in 2004. During the 2000 to 2014 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 13.9 metric tons per person to 11.4 metric tons per person in 2014, which is an 18 percent decrease.[30] Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product (GDP)) is declining, representing a 28 percent decline since the 2001 peak, while the state's GDP has grown 28 percent during this period.[31]

California greenhouse gas emissions from the transportation sector—still the State's largest single source of greenhouse gases, contributing 36 percent of total emissions—grew by 1 percent in 2014, although emissions from this sector are still 13 percent lower than peak levels in 2005.[32] The ARB attributes much of this decrease to the growing statewide fleet of fuel-efficient vehicles—the hybrid vehicle market share increased in 2012 to 7.4 percent from the 2011 level of 5.4 percent.[33]

ARB staff has projected 2020 unregulated greenhouse gas emissions, which represent the emissions that would be expected to occur in the absence of any greenhouse gas reduction actions, would be 507 million metric tons (MMT) of CO_2e.[34] The total emissions are lower than originally forecast (596 MMT) in the AB 32 Scoping Plan to account for new estimates for future fuel and energy demand and accounting for the recent economic recession.

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29 California Air Resources Board, 2014. *California Greenhouse Gas Emission Inventory*. Website: www.arb.ca.gov/cc/inventory/data/data.htm (accessed December, 27, 2017).

30 Ibid.

31 Ibid.

32 Ibid.

33 Ibid.

34 California Air Resources Board, 2013. *Greenhouse Gas Inventory: 2020 Emissions Forecast.* Website: https://www.arb.ca.gov/cc/inventory/data/bau.htm (accessed December, 27, 2017).

Greenhouse gas emissions in 2020 from the transportation sector as a whole are expected to increase to 184 MMT of CO_2e (2012 inventory is 167 MMT of CO_2e). The industrial sector consists of large stationary sources of greenhouse gas emissions and includes oil and gas production and refining facilities, cement plants, and large manufacturing facilities. Emissions for this sector are forecast to grow to 91.5 MMT of CO_2e by 2020, an increase of approximately 3 percent from the 2012 emissions inventory level. The commercial and residential sectors are expected to contribute 45.3 MMT of CO_2e, or about 9 percent of the total Statewide greenhouse gas emissions in 2020.[35]

San Francisco Bay Area Emissions

The BAAQMD established a climate protection program in 2005 to acknowledge the link between climate change and air quality. The BAAQMD regularly prepares inventories of criteria and toxic air pollutants to support planning, regulatory and other programs. The most recent emissions inventory estimates greenhouse gas emissions produced by the San Francisco Bay Area in 2011.[36] The inventory, which was published January 2015, updates the previous BAAQMD greenhouse gas emission inventory for base year 2007.

In 2011, 86.6 million metric tons of CO_2e of greenhouse gases were emitted by the San Francisco Bay Area. Fossil fuel consumption in the transportation sector was the single largest source of the San Francisco Bay Area's greenhouse gas emissions in 2011. The transportation sector (including on-road motor vehicles, locomotives, ships and boats, and aircraft) contributed 39.7 percent of greenhouse gas emissions and the industrial and commercial sectors (excluding electricity and agriculture) contributed 35.7 percent of greenhouse gas emissions in the Bay Area. Energy production activities such as electricity generation and co-generation were the third largest contributor with approximately 14 percent of the total greenhouse gas emissions. Off-road equipment such as construction, industrial, commercial, and lawn and garden equipment contributed 1.5 percent of greenhouse gas emissions.

Contra Costa County Emissions

BAAQMD provided estimated greenhouse gas emissions for the San Francisco Bay Area in year 2011 in its Bay Area Emissions Inventory Summary Report: Greenhouse Gases.[37] The inventory quantifies greenhouse gas emissions from a wide variety of sources and is arranged by sector to facilitate detailed analysis of emissions sources.

As shown in Table 6, the largest percentage of greenhouse gas emissions are from the industrial/commercial sector, approximately 47 percent, followed by the electricity/co-generation and transportation sectors, 23 and 4 percent, respectively. The residential fuel sector was responsible for 3 percent and the off-road equipment and agricultural/farming sectors were responsible for 1 percent.

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35 Ibid.

36 Bay Area Air Quality Management District, 2015. *Source Inventory of Bay Area Greenhouse Gas Emissions.* January.

37 Bay Area Air Quality Management District, 2015. *Inventory Summary Report: Greenhouse Gases, Base Year 2011*. January

Table 6: Contra Costa County Greenhouse Gas Emissions by Sector, 2011

Sector	2011 Greenhouse Gas Emissions	
	Million Metric Tons CO_2e per Year	Percent of Total
Industrial/Commercial	17.8	56
Residential Fuel	1.0	3
Electricity/Co-Gen.	7.2	23
Off-Road Equipment	0.2	1
Transportation	5.0	16
Agricultural/Farming	0.2	1
Total	**31.9**	**100**

Source: Bay Area Air Quality Management District, 2015.

METHODOLOGY

Numerous air quality modeling tools are available to assess air quality impacts of projects; however, certain air districts such as the BAAQMD have created guidelines and requirements to conduct air quality analysis. The analysis of air quality impacts for the proposed project followed the BAAQMD *CEQA Air Quality Guidelines*.[38]

In June 2010, BAAQMD adopted updated draft California Environmental Quality Act (CEQA) Air Quality Guidelines and finalized them in May 2011. These guidelines superseded previously adopted agency air quality guidelines of 1999 and were intended to advise lead agencies on how to evaluate potential air quality impacts.

In late 2010, the Building Industry Association filed a lawsuit in Alameda Superior Court, challenging the BAAQMD CEQA Guidelines on the grounds that the agency did not comply with CEQA. On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD *CEQA Air Quality Guidelines*. The court did not determine whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA. In May of 2012, the BAAQMD filed an appeal of the court's decision. In August of 2013 the First District Court of Appeal overturned the trial court and held that the thresholds of significance were not subject to CEQA review. The Court of Appeal's decision was appealed to the California Supreme Court, which granted limited review.

On December 21, 2015, the California Supreme Court rejected the BAAQMD's requirement for a so-called reverse CEQA analysis, and concluded that CEQA does not generally require a lead agency to consider the effects of existing environmental conditions on a proposed project's future residents. The Court also noted that assessing the impacts of the environment on the project is not required by CEQA.

[38] Bay Area Air Quality Management District, 2017, op. cit.

In May 2017, the BAAQMD published an updated version of the CEQA Guidelines, which includes revisions made to address the Supreme Court's opinion. The 2017 CEQA Guidelines include thresholds to evaluate project impacts in order to protectively evaluate the potential effects of the project on air quality. These protective thresholds are appropriate in the context of the size, scale, and location of the project.

Operational Emissions

The air quality analysis includes estimating emissions associated with long-term operation of the proposed project. Criteria pollutants with regional impacts would be emitted by mobile (indirect) sources associated with the proposed project. In addition, localized air quality impacts (i.e., higher carbon monoxide concentrations or "hot spots") near intersections or roadway segments in the project vicinity would potentially occur due to project generated vehicle trips.

Consistent with BAAQMD guidance for estimating emissions associated with land use development projects, the California Emission Estimator Model (CalEEMod v.2016.3.2) was used to calculate the long-term operational emissions associated with the project.

Construction Emissions

Construction activities can generate a substantial amount of air pollution. In some cases, the emissions from construction represent the largest air quality impact associated with a project. Construction activities are considered temporary; however, short term impacts can contribute to exceedances of air quality standards. Construction activities include site preparation, earthmoving and general construction. The emissions generated from these common construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel and gasoline powered equipment, portable auxiliary equipment, and worker commute trips. CalEEMod was used to calculate emissions from on-site construction equipment and emissions from worker and vehicle trips to the site.

Greenhouse Gas Emissions

Greenhouse gas emissions associated with the proposed project would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. There would also be long-term greenhouse gas emissions associated with project-related vehicular trips. Recognizing that the field of global climate change analysis is rapidly evolving, the approaches advocated most recently indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, construction activities, and any other significant source of emissions within the project area. CalEEMod was used to quantify greenhouse gas emissions generated by the proposed project.

THRESHOLDS OF SIGNIFICANCE

The State *CEQA Guidelines* indicate that a project would normally have a significant adverse air quality impact if project-generated pollutant emissions would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project is nonattainment under applicable federal or state ambient air quality standards (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

The BAAQMD has further defined these criteria of significance to indicate the project would result in a significant air quality impact if it would:

- Violate the Bay Area Air Quality Management District's air quality standards or contribute substantially to an existing or projected air quality violation by:
    - Generating average daily criteria air pollutant emissions of ROG, NO_x or $PM_{2.5}$ exhaust emissions in excess of 54 pounds per day or PM_{10} exhaust emissions of 82 pounds per day during project construction;
    - For project operations, generating average daily criteria air pollutant emissions of ROG, NO_x, or $PM_{2.5}$ in excess of 54 pounds per day, or maximum annual emissions of 10 tons per year. For emissions of PM_{10}, generating average daily emissions of 82 pounds per day or 15 tons per year; or
    - Contributing to CO concentrations exceeding the State ambient air quality standards of 9 ppm averaged over 8 hours and 20 ppm for 1-hour for project operations.

It should be noted that the emission thresholds were established based on the attainment status of the air basin in regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

- Expose sensitive receptors (including residential areas) or the general public to toxic air contaminants in excess of the following thresholds:
    - An excess cancer risk level of more than 10 in one million, or non-cancer (i.e., chronic or acute) risk greater than 1.0 hazard index from a single source;

- An incremental increase of greater than 0.3 µg/m^3 annual average $PM_{2.5}$ from a single source;
- An excess cancer risk level of more than 100 in one million, or non-cancer risk greater than 100 in one million from all sources; or
- An incremental increase of greater than 0.8 µg/m^3 annual average $PM_{2.5}$ from all sources.

The State CEQA Guidelines indicate that a project would normally have a significant adverse greenhouse gas emission impact if the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reduction the emissions of greenhouse gases.

The BAAQMD has further defined these criteria of significance to indicate the project would result in a less-than-significant air quality impact if it would:

- Result in operational-related greenhouse gas emissions of less than 1,100 metric tons of CO_2e a year; or
- Result in operational-related greenhouse gas emissions of less than 4.6 metric tons of CO_2e per service population (residents plus employees).

IMPACTS AND MITIGATION MEASURES

The project would affect air quality both during construction and operation. Operational impacts would be indirect and primarily related to vehicle trips generated by future visitors.

This section identifies the air quality impacts associated with implementation of the proposed project.

Air Quality Impacts

This section describes the construction and operational phase emission impacts.

Consistency with Existing Air Quality Plans

The applicable air quality plan is the BAAQMD 2017 Clean Air Plan, which was adopted on April 19, 2017. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines a control strategy to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas emissions to protect the climate. Consistency with the Clean Air Plan can be determined if the project does the following: 1) supports the goals of the Clean Air

Plan; 2) includes applicable control measures from the Clean Air Plan; and 3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan.

Transportation and Mobile Source Control Measures. The BAAQMD identifies control measures as part of the Clean Air Plan to reduce ozone precursor emissions from stationary, area, mobile, and transportation sources. The Transportation Control Measures are designed to reduce emissions from motor vehicles by reducing vehicle trips and vehicle miles traveled (VMT) in addition to vehicle idling and traffic congestion. The proposed project is not expected to result in significant increase in the generation of vehicle trips or VMT. In addition, portions of the project site are located within walking or cycling distance from the surrounding residential area, and therefore would support the ability of visitors to use alternative modes of transportation. Therefore, this proposed project would not conflict with the identified Transportation and Mobile Source Control Measures of the Clean Air Plan.

Land Use and Local Impact Measures. The Clean Air Plan includes Land Use and Local Impacts Measures (LUMs) to achieve the following: promote mixed-use, compact development to reduce motor vehicle travel and emissions; and ensure that planned growth is focused in a way that protects people from exposure to air pollution from stationary and mobile sources of emissions. The LUMs identified by the BAAQMD are not specifically applicable to the proposed project as they relate to actions the BAAQMD will take to reduce impacts from goods movement and health risks in affected communities. The proposed project would include approximately 4.5 miles of new trails to be opened within an existing recreational area. Therefore, the proposed project would not conflict with any of the LUMs of the Clean Air Plan.

Energy Measures. The Clean Air Plan also includes Energy and Climate Control Measures, which are designed to reduce ambient concentrations of criteria pollutants and reduce emissions of CO_2. Implementation of these measures is intended to promote energy conservation and efficiency in buildings throughout the community, promote renewable forms of energy production, reduce the "urban heat island" effect by increasing reflectivity of roofs and parking lots, and promote the planting of (low-VOC-emitting) trees to reduce biogenic emissions, lower air temperatures, provide shade, and absorb air pollutants. The measures include voluntary approaches to reduce the heat island effect by increasing shading in urban and suburban areas through the planting of trees. The proposed project would include approximately two miles of public trails and approximately 2.5 miles of EVMA roads for a total of approximately 4.5 miles new trails. The proposed project would also include a staging area with all-weather, compacted gravel parking to accommodate up to 25 vehicles and two small parking trailheads to accommodate up to six vehicles. The proposed project would not increase ambient concentrations of criteria pollutants or emissions of CO_2. Therefore the project would not conflict with the Energy and Climate Control Measures. As discussed above, implementation of the proposed project would not disrupt or hinder implementation of the applicable measures outlined in the Clean Air Plan, including Transportation and Mobile Source Control Measures, Land Use and Local Impact Measures, and Energy Measures.

Violate Air Quality Standards

The following section describes the project's CO impacts and construction- and operation-related air quality impacts. The conclusions are summarized at the end of each subsection. As discussed,

impacts would be less than significant for localized CO emission and operational emissions. Impacts associated with construction-period emissions would be less than significant with implementation of the required BAAQMD Basic Construction Mitigation Measures.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and TACs such as diesel exhaust particulate matter.

Site preparation and project construction would involve grading, paving, and some building activities. Construction-related effects on air quality from the proposed project would be greatest during the grading phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions (PM_{10}). With the implementation of these Basic Construction Mitigation Measures, fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, ROG and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

The trails would be constructed mostly with hand tools, which would only result in minimal amounts of pollutants. Construction emissions for the staging area and parking lots were estimated using CalEEMod, consistent with BAAQMD recommendations. Construction of the staging area and parking lots would include approximately 750 cubic yards of cut and approximately 100 cubic yards of fill, which were included as inputs to the CalEEMod analysis. Other specific construction details are not yet known; therefore default assumptions (e.g., construction duration and fleet activities) from CalEEMod were used. The construction duration was assumed to occur for approximately 6 months.

Table 7: Project Construction Emissions in Pounds Per Day

Project Construction	ROG	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Average Daily Emissions	0.7	6.9	0.4	0.4
BAAQMD Thresholds	54.0	54.0	82.0	54.0
Exceed Threshold?	**No**	**No**	**No**	**No**

Source: LSA, 2017.

As shown in Table 7, construction emissions associated with the project would be less than significant for ROG, NO_x and $PM_{2.5}$ and PM_{10} exhaust emissions. The BAAQMD and City of San Ramon General Plan Implementing Policy 12.6-I-3 require the implementation of Basic Construction Mitigation Measures to reduce construction dust (fugitive PM_{10} and $PM_{2.5}$) impacts to a less-than-significant level as follows:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt tracked-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the EBRPD regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Operational Air Quality Impacts. Long-term air emission impacts are those associated with area sources and mobile sources involving any change related to the proposed project. In addition to the short-term construction emissions, the project would also generate long-term air emissions, such as

those associated with changes in permanent use of the project site. These long-term emissions are primarily mobile source emissions that would result from vehicle trips associated with the proposed project. Area sources, such as landscape equipment, would also result in pollutant emissions.

PM_{10} emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. Entrainment of PM_{10} occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other PM emission processes. Gasoline-powered engines have small rates of particulate matter emissions compared with diesel-powered vehicles. Since much of the project traffic fleet would be made up of light-duty gasoline-powered vehicles, a majority of the PM_{10} emissions would result from entrainment of roadway dust from vehicle travel.

Typically, energy source emissions result from activities in buildings for which electricity and natural gas are used. The quantity of emissions is the product of usage intensity (i.e., the amount of electricity or natural gas) and the emission factor of the fuel source. Major sources of energy demand include building mechanical systems, such as heating and air conditioning, lighting, and plug-in electronics, such as refrigerators or cooking equipment. Greater building or appliance efficiency reduces the amount of energy for a given activity and thus lowers the resultant emissions. The emission factor is determined by the fuel source, with cleaner energy sources, like renewable energy, producing fewer emissions than conventional sources. The proposed project would generate a minimal amount of energy source emissions which would be associated with lighting at the staging area.

Area source emissions associated with the project would include emissions from the use of landscaping equipment, if any.

The project would result in low levels of off-site emissions due to energy generation associated with lighting. However, these emissions would be minimal and would not exceed the pollutant thresholds established by the BAAQMD.

The proposed project would include approximately two miles of public trails and approximately 2.5 miles of EVMA roads for a total of approximately 4.5 miles new trails. The proposed project would also include a staging area with all-weather, compacted gravel parking to accommodate up to 25 vehicles and two small parking trailheads to accommodate up to 6 vehicles. The proposed project would also include cattle operations at the staging area a few times each year for grazing purposes.

Emission estimates for the project were calculated using CalEEMod. Model results are shown in Table 8. Trip generation rates for the project were based on the Circulation Assessment,[39] which estimates the proposed project would generate a maximum of 460 net new average daily trips. This analysis is conservative because the maximum daily trips would primarily occur on during the peak season on weekend days.

[39] LSA, 2018. *Circulation Assessment Las Trampas Wilderness Regional Preserve Land Use Plan Amendment*. May.

The daily emissions associated with project operational trip generation, energy and area sources are identified in Table 8 for ROG, NO_x, PM_{10}, and $PM_{2.5}$. The primary emissions associated with the project are regional in nature, meaning that air pollutants are rapidly dispersed on release or, in the case of vehicle emissions associated with the project; emissions are released in other areas of the air basin. Because the resulting emissions are dispersed rapidly and contribute only a small fraction of the region's air pollution, air quality in the immediate vicinity of the project site would not substantially change compared to existing conditions or the air quality monitoring data reported in Table 5. Model results are shown in Appendix A.

The results shown in Table 8 indicate the project would not exceed the significance criteria for daily ROG, NO_2, PM_{10} or $PM_{2.5}$ emissions; therefore, the proposed project would not have a significant effect on regional air quality and mitigation would not be required.

Table 8: Project Operation Emissions

Project Construction	ROG	NO_x	PM_{10}	$PM_{2.5}$
Emissions in Pounds Per Day				
Area Source Emissions	0.0	0.0	0.0	0.0
Energy Source Emissions	0.0	0.0	0.0	0.0
Mobile Source Emissions	0.9	4.1	2.4	0.7
Total Emissions	**0.9**	**4.1**	**2.4**	**0.7**
BAAQMD Threshold	**54.0**	**54.0**	**82.0**	**54.0**
Exceed?				
Emissions in Tons Per Year				
Area Source Emissions	0.0	0.0	0.0	0.0
Energy Source Emissions	0.0	0.0	0.0	0.0
Mobile Source Emissions	0.2	0.7	0.4	0.1
Total Emissions	**0.2**	**0.7**	**0.4**	**0.1**
BAAQMD Threshold	**10.0**	**10.0**	**15.0**	**10.0**
Exceed?	**No**	**No**	**No**	**No**

Source: LSA, 2017.

Therefore, the proposed project would not be a significant source of operational criteria pollutant emissions and this impact would be less than significant.

Localized CO Impacts. The BAAQMD has established a screening methodology that provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the BAAQMD CEQA Guidelines, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.

- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

Implementation of the proposed project would not conflict with the Contra Costa County Countywide Transportation Plan for designated roads or highways, a regional transportation plan, or other agency plans. The proposed project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour, or increase traffic volumes at affected intersections to more than 24,000 vehicles per hour. Therefore, the project would not result in localized CO concentrations that exceed State or federal standards and impacts would be less-than-significant.

Exposure of Sensitive Receptors to Toxic Air Contaminants

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks. The closest sensitive receptor includes the single-family residence located approximately 40 feet west of the proposed staging area. In addition, other single-family residences would be located approximately 75 feet from proposed trails.

According to the BAAQMD, a project would result in a significant impact if it would: individually expose sensitive receptors to TACs resulting in an increased cancer risk greater than 10.0 in one million, increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute), or an annual average ambient $PM_{2.5}$ increase greater than 0.3 micrograms per cubic meter ($\mu g/m^3$). A significant cumulative impact would occur if the project in combination with other projects located within a 1,000-foot radius of the project site would expose sensitive receptors to TACs resulting in an increased cancer risk greater than 100.0 in one million, an increased non-cancer risk of greater than 10.0 on the hazard index (chronic), or an ambient $PM_{2.5}$ increase greater than 0.8 $\mu g/m^3$ on an annual average basis. Impacts from substantial pollutant concentrations are discussed below.

As described above, construction of the proposed project may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, construction contractors would be required to implement the BAAQMD Basic Construction Mitigation Measures described above. With implementation of these mitigation measures, project construction emissions would be below the BAAQMD significance thresholds and, once the project is constructed, the project would not be a source of substantial emissions. In addition, individuals using the trails would not be impacted by existing roadway emissions due to the short term use of the trails for recreation. Therefore, sensitive receptors are not expected to be exposed to substantial pollutant concentrations during project construction or operation, and potential impacts would be considered less than significant.

Cumulative Impact Assessment

CEQA defines a cumulative impact as two or more individual effects, which when considered together, are considerable or which compound or increase other environmental impacts. According to the BAAQMD, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself; result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. Therefore, if daily average or annual emissions of operational-related criteria air pollutants exceed any applicable threshold established by the BAAQMD, the proposed project would result in a cumulatively significant impact.

As discussed above, implementation of the proposed project would generate less than significant operational emissions. As shown in the project-specific air quality impacts discussion above, the proposed project would not result in individually significant impacts and therefore would also not make a cumulatively considerable contribution to regional air quality impacts.

Objectionable Odors

During project construction, some odors may be present due to diesel exhaust. However, these odors would be temporary and limited to the construction period. The proposed project would not include any activities or operations that would generate objectionable odors and once operational, the project would not be a source of odors. Therefore, the proposed project would not create objectionable odors affecting a substantial number of people.

Greenhouse Gas Impacts

This section discusses the project's impacts related to the release of greenhouse gas emissions for both construction and project operation.

Generate Significant Greenhouse Gas Emissions

Construction Activities. Construction activities associated with the proposed project would produce combustion emissions from various sources. During construction, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, lead agencies are encouraged to quantify and disclose GHG emissions that would occur during construction.

Using CalEEMod, it is estimated that the project would generate approximately 66 metric tons of CO_2e during the construction period. Implementation of the BAAQMD Basic Construction Mitigation Measures would further reduce GHG emissions during the construction period to ensure impacts remain less than significant.

Operational GHG Emissions. The proposed project would include approximately two miles of public trails and approximately 2.5 miles of EVMA roads for a total of approximately 4.5 miles new trails. The proposed project would also include a staging area with all-weather, compacted gravel parking to accommodate up to 25 vehicles and two small parking trailheads to accommodate up to six vehicles.

When calculating project GHG emissions to compare to the thresholds of significance, the BAAQMD recommends that the lead agency consider project design features, attributes, and local development requirements as part of the project as proposed and not as mitigation measures. Consistent with BAAQMD guidance, GHG emissions were estimated using CalEEMod. Model results are shown in Table 9. Trip generation rates for the project were based on the Circulation Assessment,[40] which estimates the proposed project would generate a maximum of 460 net new average daily trips. This analysis is conservative because the maximum daily trips would primarily occur on during the peak season on weekend days.

Table 9 shows the calculated GHG emissions for the proposed project. Mobile source emissions associated with park visitors are the primary emissions comprising 99 percent of total CO_2e emissions. Water source emissions are approximately 1 percent of the total. Additional calculation details are provided in Appendix B.

Table 9: GHG Emissions (Metric Tons Per Year)

Emissions Source	Operational Emissions				
	CO_2	CH_4	N_2O	CO_2e	Percent of Total
Area Source Emissions	0.0	0.0	0.0	0.0	0
Energy Source Emissions	0.0	0.0	0.0	0.0	0
Mobile Source Emissions	483.4	0.0	0.0	483.9	99
Waste Source Emissions	0.0	0.0	0.0	0.0	0
Water Source Emissions	0.2	0.0	0.0	0.2	1
Total Emissions				**484.1**	**100**

Source: LSA, 2017.

As discussed above, according to the BAAQMD, a project would have less-than-significant GHG emissions if it would meet one or more of the following criteria: result in operational-related greenhouse gas emissions of less than 1,100 metric tons of CO_2e a year, or result in operational-related greenhouse gas emissions of less than 4.6 metric tons of CO_2e per service population (residents plus employees). Based on the analysis results, the proposed project would generate approximately 484.1 metric tons of CO_2e which is well below the BAAQMD's numeric threshold of 1,100 metric tons CO_2e. Therefore, the project would not have a significant effect on the environment related to greenhouse gas emissions.

[40] LSA, 2017. op. cit.

Consistency with Greenhouse Gas Reduction Plans

The Contra Costa County CAP, adopted in 2015, addresses local climate change and includes GHG reduction targets to comply with Assembly Bill 32, the California Global Warming Solutions Act of 2006. The CAP strategy is primarily based upon the land use, transportation, and conservation policies that are included in the General Plan. The CAP demonstrates that through land use planning/density choices, reduction in vehicle miles traveled, and energy conservation measures, the county contributes to the State greenhouse gas reduction targets.

In addition, the City of San Ramon CAP, adopted in 2011, addresses local climate change and includes GHG reduction targets to comply with Assembly Bill 32, the California Global Warming Solutions Act of 2006. The CAP strategy is primarily based upon the land use, transportation, and conservation policies that are included in the General Plan 2030. The CAP demonstrates that through land use planning/density choices, reduction in vehicle miles traveled, and energy conservation measures, the City contributes to the State greenhouse gas reduction targets.

The Town of Danville SAP, adopted in 2013, identifies more environmentally sustainable practices in Danville, to help reach emission reduction targets that were adopted through Assembly Bill 32 in 2006. Assembly Bill (AB) 32 requires California to reduce statewide greenhouse gas emissions to 1990 levels by the year 2020. The SAP is designed to reduce community-related and County operations related greenhouse gas emissions to a degree that would not hinder or delay implementation of AB 32.

As discussed above, the proposed project would open to the public approximately two miles of narrow (single-track) trails and 2.5 miles of EVMA roads for a total of approximately 4.5 miles of new trails. Strategy Measure LUT 1.5 of the County's CAP states the County will work with the Contra Costa Transportation Authority to improve access to community-wide bicycle and pedestrian networks by closing gaps in the network, removing barriers, and providing additional bike- and pedestrian-oriented infrastructure. In addition, the San Ramon CAP includes Policy 5.7.I-11, which states that the City will work with Caltrans to improve bicycle and pedestrian safety and freeway crossings. Additionally, Strategy T-3 of the CAP states the City will provide a safe and well-connected system of bicycle paths, lanes, and trails to increase bicycle use. Lastly, the Danville SAP Policy LT-9 requires implementation of General Plan policies to create a safer, more connected, and enhanced bicycle network in Danville. The project is consistent with these policies as it would extend existing trails, enhancing safety, and improving efficiency of trail use for bicycle transportation.

The proposed project would not result in a substantial increase in GHG emissions; and therefore, is consistent with the Contra Costa County CAP, San Ramon CAP, and Danville SAP and would not generate emissions that would exceed the project-level significance criteria established by the BAAQMD. The project would also be consistent with the strategies and policies included in the Contra Costa County CAP, San Ramon CAP, and Danville SAP. Therefore, the proposed project would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This impact would be less than significant.

CONCLUSION

Based on the analysis presented above, construction and operation of the proposed project would not result in the generation of criteria air pollutants that would exceed BAAQMD thresholds of significance. Implementation of BAAQMD Basic Construction Mitigation Measures would further reduce construction dust impacts. The proposed project is not expected to produce significant emissions that would affect nearby sensitive receptors. The project would also not result in objectionable odors affecting a substantial number of people. GHG emissions released during construction and operation of the project are estimated to be lower than significance thresholds, and would not be cumulatively considerable. The project would also be consistent with local plans adopted for the purposed of reducing GHG emissions. Therefore, the proposed project would not result in significant air quality or GHG impacts.

APPENDIX A

CALEEMOD OUTPUT SHEETS

Las Trampas Project - Construction Analysis

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	12.00	Space	0.11	4,800.00	0
Parking Lot	25.00	Space	0.22	10,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - update based on latest PG&E Data

Land Use - Based on PD

Construction Phase - Based on Default Caleemod Assumptions

Off-road Equipment -

Off-road Equipment - Provided in Construction Detailed Fleet

Off-road Equipment - Based on detailed construction fleet

Off-road Equipment - Provided in Construction Detailed Fleet

Off-road Equipment - Caleemod Default

Off-road Equipment - Provided in Construction Detailed Fleet

Trips and VMT -

Demolition -

Grading - Per the current exhibit, the earthwork is approxiamtely: 750 cy cut and 100 cy fill

Architectural Coating -

Vehicle Trips -

Road Dust - Based on Project information

Area Coating -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - paint

Table Name	Column Name	Default Value	New Value
tblGrading	MaterialExported	0.00	750.00
tblGrading	MaterialImported	0.00	100.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	RoadPercentPave	100	0

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0647	0.6241	0.4380	7.2000e-004	5.4000e-003	0.0381	0.0435	1.6200e-003	0.0351	0.0367		65.8255	65.8255	0.0177	0.0000	66.2686
Maximum	**0.0647**	**0.6241**	**0.4380**	**7.2000e-004**	**5.4000e-003**	**0.0381**	**0.0435**	**1.6200e-003**	**0.0351**	**0.0367**		**65.8255**	**65.8255**	**0.0177**	**0.0000**	**66.2686**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0647	0.6241	0.4380	7.2000e-004	5.4000e-003	0.0381	0.0435	1.6200e-003	0.0351	0.0367		65.8254	65.8254	0.0177	0.0000	66.2685
Maximum	**0.0647**	**0.6241**	**0.4380**	**7.2000e-004**	**5.4000e-003**	**0.0381**	**0.0435**	**1.6200e-003**	**0.0351**	**0.0367**		**65.8254**	**65.8254**	**0.0177**	**0.0000**	**66.2685**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2018**	**3-31-2018**	0.3558	0.3558
2	**4-1-2018**	**6-30-2018**	0.3309	0.3309
		Highest	0.3558	0.3558

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Service Installation	Site Preparation	1/13/2018	1/15/2018	5	1	Service Preparation
2	Grading	Grading	1/16/2018	1/17/2018	5	2	Grading
3	Building Construction	Building Construction	1/18/2018	6/6/2018	5	100	Building Construction

4	Asphalt	Paving	6/7/2018	6/13/2018	5	5	Asphalt
5	Architechtural Coating	Architectural Coating	6/14/2018	6/20/2018	5	5	Architechtural coating

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.33

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 888

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Service Installation	Graders	1	8.00	187	0.41
Service Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Buidling Construction	Cranes	1	4.00	231	0.29
Buidling Construction	Forklifts	2	6.00	89	0.20
Buidling Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Asphalt	Cement and Mortar Mixers	4	6.00	9	0.56
Asphalt	Pavers	1	7.00	130	0.42
Asphalt	Rollers	1	7.00	80	0.38
Asphalt	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architechtural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Service Installation	2	5.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	106.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Buidling Construction	5	6.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

Asphalt	7	18.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architechtural Coating	1	1.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Service Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005		0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9000e-004	4.8800e-003	2.1300e-003	0.0000		2.1000e-004	2.1000e-004		1.9000e-004	1.9000e-004		0.4458	0.4458	1.4000e-004	0.0000	0.4492
Total	**3.9000e-004**	**4.8800e-003**	**2.1300e-003**	**0.0000**	**2.7000e-004**	**2.1000e-004**	**4.8000e-004**	**3.0000e-005**	**1.9000e-004**	**2.2000e-004**		**0.4458**	**0.4458**	**1.4000e-004**	**0.0000**	**0.4492**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.0184	0.0184	0.0000	0.0000	0.0184
Total	**1.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**		**0.0184**	**0.0184**	**0.0000**	**0.0000**	**0.0184**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005		0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9000e-004	4.8800e-003	2.1300e-003	0.0000		2.1000e-004	2.1000e-004		1.9000e-004	1.9000e-004		0.4458	0.4458	1.4000e-004	0.0000	0.4492
Total	**3.9000e-004**	**4.8800e-003**	**2.1300e-003**	**0.0000**	**2.7000e-004**	**2.1000e-004**	**4.8000e-004**	**3.0000e-005**	**1.9000e-004**	**2.2000e-004**		**0.4458**	**0.4458**	**1.4000e-004**	**0.0000**	**0.4492**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.0184	0.0184	0.0000	0.0000	0.0184
Total	**1.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**		**0.0184**	**0.0184**	**0.0000**	**0.0000**	**0.0184**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-004	0.0000	8.0000e-004	4.2000e-004	0.0000	4.2000e-004		0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0600e-003	9.4300e-003	7.7800e-003	1.0000e-005		6.2000e-004	6.2000e-004		5.9000e-004	5.9000e-004		1.0608	1.0608	2.0000e-004	0.0000	1.0659
Total	**1.0600e-003**	**9.4300e-003**	**7.7800e-003**	**1.0000e-005**	**8.0000e-004**	**6.2000e-004**	**1.4200e-003**	**4.2000e-004**	**5.9000e-004**	**1.0100e-003**		**1.0608**	**1.0608**	**2.0000e-004**	**0.0000**	**1.0659**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.1000e-004	0.0175	3.3300e-003	4.0000e-005	9.0000e-004	7.0000e-005	9.6000e-004	2.5000e-004	7.0000e-005	3.1000e-004		4.1475	4.1475	2.2000e-004	0.0000	4.1529
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.1000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005		0.0737	0.0737	0.0000	0.0000	0.0737
Total	**5.5000e-004**	**0.0175**	**3.6400e-003**	**4.0000e-005**	**9.8000e-004**	**7.0000e-005**	**1.0400e-003**	**2.7000e-004**	**7.0000e-005**	**3.3000e-004**		**4.2211**	**4.2211**	**2.2000e-004**	**0.0000**	**4.2267**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-004	0.0000	8.0000e-004	4.2000e-004	0.0000	4.2000e-004		0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	1.0600e-003	9.4300e-003	7.7800e-003	1.0000e-005		6.2000e-004	6.2000e-004		5.9000e-004	5.9000e-004		1.0608	1.0608	2.0000e-004	0.0000	1.0659
Total	**1.0600e-003**	**9.4300e-003**	**7.7800e-003**	**1.0000e-005**	**8.0000e-004**	**6.2000e-004**	**1.4200e-003**	**4.2000e-004**	**5.9000e-004**	**1.0100e-003**		**1.0608**	**1.0608**	**2.0000e-004**	**0.0000**	**1.0659**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.1000e-004	0.0175	3.3300e-003	4.0000e-005	9.0000e-004	7.0000e-005	9.6000e-004	2.5000e-004	7.0000e-005	3.1000e-004		4.1475	4.1475	2.2000e-004	0.0000	4.1529
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.1000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005		0.0737	0.0737	0.0000	0.0000	0.0737
Total	**5.5000e-004**	**0.0175**	**3.6400e-003**	**4.0000e-005**	**9.8000e-004**	**7.0000e-005**	**1.0400e-003**	**2.7000e-004**	**7.0000e-005**	**3.3000e-004**		**4.2211**	**4.2211**	**2.2000e-004**	**0.0000**	**4.2267**

3.4 Buidling Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0542	0.5516	0.3876	5.7000e-004		0.0354	0.0354		0.0326	0.0326		52.0058	52.0058	0.0162	0.0000	52.4106
Total	**0.0542**	**0.5516**	**0.3876**	**5.7000e-004**		**0.0354**	**0.0354**		**0.0326**	**0.0326**		**52.0058**	**52.0058**	**0.0162**	**0.0000**	**52.4106**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.9000e-004	0.0127	3.4000e-003	3.0000e-005	5.9000e-004	9.0000e-005	6.9000e-004	1.7000e-004	9.0000e-005	2.6000e-004		2.4475	2.4475	1.5000e-004	0.0000	2.4512
Worker	1.2100e-003	9.2000e-004	9.2700e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004		2.2106	2.2106	7.0000e-005	0.0000	2.2123
Total	**1.7000e-003**	**0.0137**	**0.0127**	**5.0000e-005**	**2.9600e-003**	**1.1000e-004**	**3.0800e-003**	**8.0000e-004**	**1.1000e-004**	**9.1000e-004**		**4.6581**	**4.6581**	**2.2000e-004**	**0.0000**	**4.6635**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0542	0.5516	0.3876	5.7000e-004		0.0354	0.0354		0.0326	0.0326		52.0058	52.0058	0.0162	0.0000	52.4105
Total	**0.0542**	**0.5516**	**0.3876**	**5.7000e-004**		**0.0354**	**0.0354**		**0.0326**	**0.0326**		**52.0058**	**52.0058**	**0.0162**	**0.0000**	**52.4105**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.9000e-004	0.0127	3.4000e-003	3.0000e-005	5.9000e-004	9.0000e-005	6.9000e-004	1.7000e-004	9.0000e-005	2.6000e-004		2.4475	2.4475	1.5000e-004	0.0000	2.4512
Worker	1.2100e-003	9.2000e-004	9.2700e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004		2.2106	2.2106	7.0000e-005	0.0000	2.2123
Total	**1.7000e-003**	**0.0137**	**0.0127**	**5.0000e-005**	**2.9600e-003**	**1.1000e-004**	**3.0800e-003**	**8.0000e-004**	**1.1000e-004**	**9.1000e-004**		**4.6581**	**4.6581**	**2.2000e-004**	**0.0000**	**4.6635**

3.5 Asphalt - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3000e-003	0.0219	0.0181	3.0000e-005		1.2800e-003	1.2800e-003		1.1800e-003	1.1800e-003		2.4270	2.4270	6.8000e-004	0.0000	2.4441
Paving	4.3000e-004					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.7300e-003**	**0.0219**	**0.0181**	**3.0000e-005**		**1.2800e-003**	**1.2800e-003**		**1.1800e-003**	**1.1800e-003**		**2.4270**	**2.4270**	**6.8000e-004**	**0.0000**	**2.4441**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Worker	1.8000e-004	1.4000e-004	1.3900e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004		0.3316	0.3316	1.0000e-005	0.0000	0.3318
Total	**1.8000e-004**	**1.4000e-004**	**1.3900e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**		**0.3316**	**0.3316**	**1.0000e-005**	**0.0000**	**0.3318**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3000e-003	0.0219	0.0181	3.0000e-005		1.2800e-003	1.2800e-003		1.1800e-003	1.1800e-003		2.4270	2.4270	6.8000e-004	0.0000	2.4441
Paving	4.3000e-004					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.7300e-003**	**0.0219**	**0.0181**	**3.0000e-005**		**1.2800e-003**	**1.2800e-003**		**1.1800e-003**	**1.1800e-003**		**2.4270**	**2.4270**	**6.8000e-004**	**0.0000**	**2.4441**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.4000e-004	1.3900e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004		0.3316	0.3316	1.0000e-005	0.0000	0.3318
Total	**1.8000e-004**	**1.4000e-004**	**1.3900e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**		**0.3316**	**0.3316**	**1.0000e-005**	**0.0000**	**0.3318**

3.6 Architechtural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.0900e-003					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5000e-004	5.0100e-003	4.6400e-003	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.6383	0.6383	6.0000e-005	0.0000	0.6398
Total	**3.8400e-003**	**5.0100e-003**	**4.6400e-003**	**1.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**		**0.6383**	**0.6383**	**6.0000e-005**	**0.0000**	**0.6398**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.0184	0.0184	0.0000	0.0000	0.0184
Total	**1.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**		**0.0184**	**0.0184**	**0.0000**	**0.0000**	**0.0184**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Archit. Coating	3.0900e-003					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5000e-004	5.0100e-003	4.6400e-003	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		0.6383	0.6383	6.0000e-005	0.0000	0.6398
Total	**3.8400e-003**	**5.0100e-003**	**4.6400e-003**	**1.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**		**0.6383**	**0.6383**	**6.0000e-005**	**0.0000**	**0.6398**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.0184	0.0184	0.0000	0.0000	0.0184
Total	**1.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**		**0.0184**	**0.0184**	**0.0000**	**0.0000**	**0.0184**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000		0.6814	0.6814	7.0000e-005	1.0000e-005	0.6873
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000		0.6814	0.6814	7.0000e-005	1.0000e-005	0.6873
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	1680	0.2210	2.0000e-005	0.0000	0.2229
Parking Lot	3500	0.4604	5.0000e-005	1.0000e-005	0.4644
Total		**0.6814**	**7.0000e-005**	**1.0000e-005**	**0.6873**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	1680	0.2210	2.0000e-005	0.0000	0.2229
Parking Lot	3500	0.4604	5.0000e-005	1.0000e-005	0.4644
Total		**0.6814**	**7.0000e-005**	**1.0000e-005**	**0.6873**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.3000e-003	0.0000	3.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000	0.0000	7.1000e-004
Unmitigated	1.3000e-003	0.0000	3.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000	0.0000	7.1000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.1000e-004					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.6000e-004					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000	0.0000	7.1000e-004
Total	**1.3000e-003**	**0.0000**	**3.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**	**0.0000**	**7.1000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.1000e-004					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.6000e-004					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000	0.0000	7.1000e-004
Total	**1.3000e-003**	**0.0000**	**3.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**	**0.0000**	**7.1000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000

Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Las Trampas Project - Operational Analysis

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.33	Acre	0.33	14,374.80	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - update based on latest PG&E Data

Land Use - Based on PD

Construction Phase - Based on Default Caleemod Assumptions

Off-road Equipment -

Off-road Equipment - Provided in Construction Detailed Fleet

Off-road Equipment - Based on detailed construction fleet

Off-road Equipment - Provided in Construction Detailed Fleet

Off-road Equipment - Caleemod Default

Off-road Equipment - Provided in Construction Detailed Fleet

Trips and VMT -

Demolition -

Grading - Per the current exhibit, the earthwork is approxiamtely: 750 cy cut and 100 cy fill

Architectural Coating -

Vehicle Trips - Trip generation based on the Circulation Assessment prepared for the proposed project.

Road Dust - Based on Project information

Area Coating -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - paint

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	106.00
tblVehicleTrips	ST_TR	22.75	1,393.94
tblVehicleTrips	SU_TR	16.74	1,393.94
tblVehicleTrips	WD_TR	1.89	1,393.94

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4000e-004	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1505	0.7224	1.7365	5.2800e-003	0.4224	6.7600e-003	0.4292	0.1134	6.3700e-003	0.1198		483.4243	483.4243	0.0198	0.0000	483.9197
Waste						0.0000	0.0000		0.0000	0.0000		0.0000	6.0900e-003	3.6000e-004	0.0000	0.0151
Water						0.0000	0.0000		0.0000	0.0000		0.1810	0.1810	2.0000e-005	0.0000	0.1826
Total	**0.1506**	**0.7224**	**1.7365**	**5.2800e-003**	**0.4224**	**6.7600e-003**	**0.4292**	**0.1134**	**6.3700e-003**	**0.1198**		**483.6053**	**483.6114**	**0.0202**	**0.0000**	**484.1174**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4000e-004	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1505	0.7224	1.7365	5.2800e-003	0.4224	6.7600e-003	0.4292	0.1134	6.3700e-003	0.1198		483.4243	483.4243	0.0198	0.0000	483.9197
Waste						0.0000	0.0000		0.0000	0.0000		0.0000	6.0900e-003	3.6000e-004	0.0000	0.0151
Water						0.0000	0.0000		0.0000	0.0000		0.1810	0.1810	2.0000e-005	0.0000	0.1826
Total	**0.1506**	**0.7224**	**1.7365**	**5.2800e-003**	**0.4224**	**6.7600e-003**	**0.4292**	**0.1134**	**6.3700e-003**	**0.1198**		**483.6053**	**483.6114**	**0.0202**	**0.0000**	**484.1174**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1505	0.7224	1.7365	5.2800e-003	0.4224	6.7600e-003	0.4292	0.1134	6.3700e-003	0.1198		483.4243	483.4243	0.0198	0.0000	483.9197
Unmitigated	0.1505	0.7224	1.7365	5.2800e-003	0.4224	6.7600e-003	0.4292	0.1134	6.3700e-003	0.1198		483.4243	483.4243	0.0198	0.0000	483.9197

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	460.00	460.00	460.00	1,134,455	1,134,455
Total	460.00	460.00	460.00	1,134,455	1,134,455

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.570523	0.041853	0.194077	0.115893	0.018544	0.005373	0.016909	0.024079	0.002502	0.002562	0.005975	0.000872	0.000837

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4000e-004	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Unmitigated	1.4000e-004	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4000e-004					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

Total	**1.4000e-004**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4000e-004					0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**1.4000e-004**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1810	2.0000e-005	0.0000	0.1826
Unmitigated	0.1810	2.0000e-005	0.0000	0.1826

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.393189	0.1810	2.0000e-005	0.0000	0.1826
Total		**0.1810**	**2.0000e-005**	**0.0000**	**0.1826**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.393189	0.1810	2.0000e-005	0.0000	0.1826
Total		**0.1810**	**2.0000e-005**	**0.0000**	**0.1826**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.0900e-003	3.6000e-004	0.0000	0.0151
Unmitigated	6.0900e-003	3.6000e-004	0.0000	0.0151

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.03	6.0900e-003	3.6000e-004	0.0000	0.0151
Total		**6.0900e-003**	**3.6000e-004**	**0.0000**	**0.0151**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.03	6.0900e-003	3.6000e-004	0.0000	0.0151

Total		**6.0900e-003**	**3.6000e-004**	**0.0000**	**0.0151**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Las Trampas Project - Operational Analysis

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.33	Acre	0.33	14,374.80	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - update based on latest PG&E Data

Land Use - Based on PD

Construction Phase - Based on Default Caleemod Assumptions

Off-road Equipment -

Off-road Equipment - Provided in Construction Detailed Fleet

Off-road Equipment - Based on detailed construction fleet

Off-road Equipment - Provided in Construction Detailed Fleet

Off-road Equipment - Caleemod Default

Off-road Equipment - Provided in Construction Detailed Fleet

Trips and VMT -

Demolition -

Grading - Per the current exhibit, the earthwork is approxiamtely: 750 cy cut and 100 cy fill

Architectural Coating -

Vehicle Trips - Trip generation based on the Circulation Assessment prepared for the proposed project.

Road Dust - Based on Project information

Area Coating -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - paint

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	106.00
tblVehicleTrips	ST_TR	22.75	1,393.94
tblVehicleTrips	SU_TR	16.74	1,393.94
tblVehicleTrips	WD_TR	1.89	1,393.94

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.4000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005

Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.9381	3.8271	9.8980	0.0308	2.4111	0.0371	2.4482	0.6453	0.0349	0.6803		3,102.2052	3,102.2052	0.1211		3,105.2326
Total	**0.9389**	**3.8271**	**9.8981**	**0.0308**	**2.4111**	**0.0371**	**2.4482**	**0.6453**	**0.0349**	**0.6803**		**3,102.2053**	**3,102.2053**	**0.1211**	**0.0000**	**3,105.2327**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.4000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.9381	3.8271	9.8980	0.0308	2.4111	0.0371	2.4482	0.6453	0.0349	0.6803		3,102.2052	3,102.2052	0.1211		3,105.2326
Total	**0.9389**	**3.8271**	**9.8981**	**0.0308**	**2.4111**	**0.0371**	**2.4482**	**0.6453**	**0.0349**	**0.6803**		**3,102.2053**	**3,102.2053**	**0.1211**	**0.0000**	**3,105.2327**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Mitigated	0.9381	3.8271	9.8980	0.0308	2.4111	0.0371	2.4482	0.6453	0.0349	0.6803		3,102.2052	3,102.2052	0.1211		3,105.2326
Unmitigated	0.9381	3.8271	9.8980	0.0308	2.4111	0.0371	2.4482	0.6453	0.0349	0.6803		3,102.2052	3,102.2052	0.1211		3,105.2326

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	460.00	460.00	460.00	1,134,455	1,134,455
Total	460.00	460.00	460.00	1,134,455	1,134,455

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.570523	0.041853	0.194077	0.115893	0.018544	0.005373	0.016909	0.024079	0.002502	0.002562	0.005975	0.000872	0.000837

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.4000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005
Unmitigated	7.4000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.4000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005
Total	**7.4000e-004**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**7.0000e-005**	**7.0000e-005**	**0.0000**		**8.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.4000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005
Total	**7.4000e-004**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**7.0000e-005**	**7.0000e-005**	**0.0000**		**8.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Las Trampas Project - Operational Analysis

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.33	Acre	0.33	14,374.80	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - update based on latest PG&E Data

Land Use - Based on PD

Construction Phase - Based on Default Caleemod Assumptions

Off-road Equipment -

Off-road Equipment - Provided in Construction Detailed Fleet

Off-road Equipment - Based on detailed construction fleet

Off-road Equipment - Provided in Construction Detailed Fleet

Off-road Equipment - Caleemod Default

Off-road Equipment - Provided in Construction Detailed Fleet

Trips and VMT -

Demolition -

Grading - Per the current exhibit, the earthwork is approxiamtely: 750 cy cut and 100 cy fill

Architectural Coating -

Vehicle Trips - Trip generation based on the Circulation Assessment prepared for the proposed project.

Road Dust - Based on Project information

Area Coating -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - paint

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	106.00
tblVehicleTrips	ST_TR	22.75	1,393.94
tblVehicleTrips	SU_TR	16.74	1,393.94
tblVehicleTrips	WD_TR	1.89	1,393.94

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.4000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005

Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.8256	4.0566	10.0160	0.0288	2.4111	0.0374	2.4485	0.6453	0.0352	0.6805		2,901.8713	2,901.8713	0.1232		2,904.9511
Total	**0.8264**	**4.0566**	**10.0160**	**0.0288**	**2.4111**	**0.0374**	**2.4485**	**0.6453**	**0.0352**	**0.6805**		**2,901.8713**	**2,901.8713**	**0.1232**	**0.0000**	**2,904.9512**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.4000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.8256	4.0566	10.0160	0.0288	2.4111	0.0374	2.4485	0.6453	0.0352	0.6805		2,901.8713	2,901.8713	0.1232		2,904.9511
Total	**0.8264**	**4.0566**	**10.0160**	**0.0288**	**2.4111**	**0.0374**	**2.4485**	**0.6453**	**0.0352**	**0.6805**		**2,901.8713**	**2,901.8713**	**0.1232**	**0.0000**	**2,904.9512**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8256	4.0566	10.0160	0.0288	2.4111	0.0374	2.4485	0.6453	0.0352	0.6805		2,901.8713	2,901.8713	0.1232		2,904.9511
Unmitigated	0.8256	4.0566	10.0160	0.0288	2.4111	0.0374	2.4485	0.6453	0.0352	0.6805		2,901.8713	2,901.8713	0.1232		2,904.9511

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	460.00	460.00	460.00	1,134,455	1,134,455
Total	460.00	460.00	460.00	1,134,455	1,134,455

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.570523	0.041853	0.194077	0.115893	0.018544	0.005373	0.016909	0.024079	0.002502	0.002562	0.005975	0.000872	0.000837

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.4000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005
Unmitigated	7.4000e-004	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.4000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005

Total	**7.4000e-004**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**7.0000e-005**	**7.0000e-005**	**0.0000**		**8.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.4000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		7.0000e-005	7.0000e-005	0.0000		8.0000e-005
Total	**7.4000e-004**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**7.0000e-005**	**7.0000e-005**	**0.0000**		**8.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation