APPENDIX E

COMMUNITY RISK ASSESSMENT

GILROY SPORTS PARK MASTER PLAN PHASE III COMMUNITY RISK ASSESSMENT

Gilroy, California

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Introduction

The purpose of this report is to address the potential construction community risk impacts associated with the construction of the Gilroy Sports Park Master Plan Phase III project in unincorporated Santa Clara County south of downtown Gilroy, California. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1] The BAAQMD recommends using a 1,000-foot screening radius around a project site for purposes of identifying community health risk from siting a new source of toxic air contaminants (TACs).

Project Description

The existing Gilroy Sports Park is owned and operated by the City of Gilroy. Current uses and improvements on the site consist of three little league baseball diamonds, with lights, on approximately 11 acres; playground; restrooms; maintenance area; utility infrastructure; parking lot; and a landscaped entrance drive. The remaining acres are vacant and used for agricultural row-crop production on an interim basis.

The approved 79-acre Gilroy Sports Park Master Plan includes the complete development of the site with sports fields, recreational commercial space, bike/pedestrian trails, and other recreation and parking areas. The Master Plan consists of nine development phases, with the first two phases already implemented.

An amendment to the Master Plan is proposed to allow the construction and operations of a 100,000 square-foot (sf), two-story (approximately 30 feet in height) permanent building with two ice rinks and related parking for the Phase III area, instead of an approximately 41,000- sf tent-like structure, multi-use ball field, and related parking that are currently identified for that area in the Master Plan. The proposed project would include 387 parking spaces in a surface parking lot south of the Sports Park entrance road.

Setting

The project is located in Santa Clara County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a

[1] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017.

freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are single-family homes to the east of the project site.

Regulatory Agencies

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles.[2] The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

The BAAQMD is the regional agency tasked with managing air quality in the region. At the State level, the CARB (a part of the California Environmental Protection Agency [EPA]) oversees regional air district activities and regulates air quality at the State level. The BAAQMD has published California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.[3] The detailed community risk modeling methodology used in this assessment is contained in *Attachment 1*.

[2] Available online: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed: November 21, 2014.
[3] Bay Area Air Quality Management District. 2017. *BAAQMD CEQA Air Quality Guidelines.* May.

Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA and these significance thresholds were contained in the District's 2011 *CEQA Air Quality Guidelines*. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were challenged through a series of court challenges and were mostly upheld. BAAQMD updated the *CEQA Air Quality Guidelines* in 2017 to include the latest significance thresholds that were used in this analysis are summarized in Table 1.

Table 1. Community Risk Significance Thresholds

Health Risks and Hazards	Single Sources Within 1,000-foot Zone of Influence	Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)
Excess Cancer Risk	>10.0 per one million	>100 per one million
Hazard Index	>1.0	>10.0
Incremental annual $PM_{2.5}$	>0.3 µg/m^3	>0.8 µg/m^3
Note: PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases.		

Community Risk Impacts and Mitigation Measures

Project impacts related to increased community risk can occur either by generating emissions of TACs and air pollutants during construction and operation and by introducing a new sensitive receptor, such as a residential use, in proximity to an existing source of TACs. Temporary project construction activity would also generate dust and equipment exhaust on a temporary basis that could affect nearby sensitive receptors. A construction community health risk assessment was prepared to address project construction impacts on the surrounding off-site sensitive receptors. Operation of the project is not expected to be a source of TAC or localized air sources of emissions, such as generators powered by diesel engines.

Community risk impacts are addressed by predicting increased lifetime cancer risk, the increase in annual $PM_{2.5}$ concentrations and computing the Hazard Index (HI) for non-cancer health risks. Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust emissions pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and $PM_{2.5}$.[4] This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated. The methodology for computing community risks impacts is contained in *Attachment 1*.

[4] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

CalEEMod Modeling

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate emissions from construction of the site assuming full build-out of the project. The project's CalEEMod modeling was conducted and provided by *EMC Planning Group*. The provided model output from CalEEMod is included as *Attachment 2*.

CalEEMod provided annual emissions for both on- and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. A construction build-out scenario, including equipment list and schedule, was based on CalEEMod defaults. The proposed project land uses were modeled as follows:

- 100,000-sf entered as "Arena" on 5.62 acres; and
- 387 spaces and 154,800-sf entered as "Parking Lot" on 3.48 acres.

Construction of the project was predicted to begin October 2020 and last 14 months. There were an estimated 300 workdays. There is no demolition phase since the project site is vacant. Based on land uses from the conceptual site plan, the arena acreage was adjusted so the total acreage equaled 9.1 acres.

The CalEEMod model provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.1457 tons (291 pounds). The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of two miles was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.113 tons (226 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ at sensitive receptors (residences) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[5] For the construction site modeled, the modeling utilized two area sources to represent the on-site construction emissions, one for exhaust emissions and one for fugitive dust emissions. To represent the construction equipment exhaust emissions, an emission release height of 6 meters (19.7 feet) was used for the area sources. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of 2 meters (6.6 feet) was used for the area sources. Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area

[5] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

sources. Construction emissions were modeled as occurring daily between 7 a.m. and 4 p.m., when the majority of the construction activity involving equipment usage would occur.

The modeling used a 5-year meteorological data set (2013-2017) from the San Martin Airport prepared for use with the AERMOD model by BAAQMD. Annual DPM and $PM_{2.5}$ concentrations from construction activities at the project site during the October 2020 to November 2021 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptor locations. A receptor height of 1.5 meters (4.9 feet) was used to represent the breathing height of residences in nearby single-family homes.

Construction Community Risk

The maximum-modeled annual DPM and $PM_{2.5}$ concentrations, which includes both the DPM and fugitive $PM_{2.5}$ concentrations, were identified at nearby sensitive receptors (as shown in Figure 1) to find the maximally exposed individuals (MEIs). The maximum increased cancer risks were calculated using BAAQMD recommended methods and exposure parameters described in *Attachment 1*. Non-cancer health hazards and maximum $PM_{2.5}$ concentrations were also calculated and identified. *Attachment 3* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

Results of this assessment indicated that the construction MEI was located at a single-family residence east of the project site, as indicated in Figure 1. Table 2 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and health hazard indexes for project related construction activities affecting the MEI. As seen in Table 2, the construction risk impacts do not exceed the BAAQMD single-source thresholds for cancer risk, $PM_{2.5}$ concentrations, or HI.

Table 2. Construction Risk Impacts at the Offsite MEI

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction	4.2 (infant)	0.04	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*

Figure 1. Project Construction Site and Locations of Off-Site Sensitive Receptors and TAC Impacts

Cumulative Impact on Construction MEI

Community health risk assessments typically look at all substantial sources of TACs located within 1,000 feet of project sites. These sources include highways, busy surface streets, and stationary sources identified by BAAQMD. A review of the area shows that U.S. Highway 101 (U.S. 101) and Monterey Road have traffic that exceeds 10,000 vehicles per day. All other nearby streets are assumed to have less than 10,000 vehicles per day. A review of BAAQMD's stationary source Google Earth map tool identified no stationary sources within the 1,000-foot influence area. Figure 2 shows the sources affecting the project site. Details of the modeling and community risk calculations are included in *Attachment 4.*

Figure 2. Project Site, MEI, and Nearby TAC $PM_{2.5}$ Sources

Highways – U.S. 101

BAAQMD provides a *Highway Screening Analysis Google Earth Map* tool to identify estimated risk and hazard impacts from highways throughout the Bay Area. Cumulative risk, hazard, and $PM_{2.5}$ impacts at various distances from the highway are estimated for different segments of the highways. The tool uses the average annual daily traffic (AADT) count, fleet mix, and other modeling parameters specific to that segment of the highway. The lifetime cancer risk, annual

$PM_{2.5}$ exposure, and non-cancer HI impacts were identified using this tool. The Construction MEI was approximately 500 feet west of U.S. 101 at Link 1203 (6ft elevation). Cancer risk levels were adjusted for exposure duration, age, and new exposure guidance provided by OEHHA, as described in *Attachment 1*. The risk impacts from these highways are discussed in Table 3.

Local Roadways – Monterey Road

For local roadways, BAAQMD has provided the *Roadway Screening Analysis Calculator* to assess whether roadways with traffic volumes of over 10,000 vehicles per day may have a potentially significant effect on a proposed project. Note this is a screening model and more refined modeling could be conducted if potentially significant impacts are identified. Two adjustments were made to the cancer risk predictions made by this calculator: (1) adjustment for latest vehicle emissions rates predicted using EMFAC2014 and (2) adjustment of cancer risk to reflect OEHHA guidance (see *Attachment 1*).

The calculator uses EMFAC2011 emission rates for the year 2014. However, a new version of the emissions factor model, EMFAC2014 is available. This version predicts lower emission rates. An adjustment factor of 0.5 was developed by comparing emission rates of total organic gases (TOG) for running exhaust and running losses developed using EMFAC2011 for year 2014 and those from EMFAC2014 for 2018. The predicted cancer risk was then adjusted using a factor of 1.3744 to account for new OEHHA guidance. This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.[6]

The ADT on Monterey Road was estimated to be 19,640 vehicles. These estimates were based on traffic volumes included in the project's traffic analysis for cumulative plus project conditions.[7] The AM and PM peak-hour volumes were averaged and then multiplied by 10 to estimate the ADT.

The BAAQMD *Roadway Screening Analysis Calculator* for Santa Clara County was used for this roadway. Monterey Road was identified as a east-west directional roadway with the Construction MEI located approximately 910 feet south of the roadway. Estimated risk values for this roadway at the MEI are listed in Table 3. Note that BAAQMD has found that non-cancer hazards from all local roadways would be well below the BAAQMD thresholds. Chronic or acute HI for the roadway would be below 0.03.

Cumulative Health Risk Impact at Construction MEI

Table 3 reports both the project and cumulative community risk impacts at the sensitive receptor most affected by construction (i.e. the construction MEI). Without mitigation, the community risk caused by project construction activities would not exceed the maximum cancer risk, annual $PM_{2.5}$ concentration, and HI single-source significance thresholds. In addition, the cumulative

[6] Correspondence with Alison Kirk, BAAQMD, November 23, 2015.
[7] Hexagon Transportation Consultants. *Gilroy Sports Park Complex Master Plan Update Traffic Impact Analysis*. November 2019.

annual cancer risk, $PM_{2.5}$ concentration, and hazard risk values would not exceed the cumulative significance thresholds.

Table 3. Impacts from Combined Sources at Construction MEI

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction	4.2 (infant)	0.04	<0.01
U.S. 101 (Link 1203, 6ft elevation) at 500 feet west	21.6	0.11	0.01
Monterey Road (ADT 19,640) at 910 feet south	0.9	0.03	<0.03
Combined Sources	26.7 (infant)	0.18	<0.05
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Exceed Threshold?	*No*	*No*	*No*

Supporting Documentation

Attachment 1 is the methodology used to compute community risk impacts, including the methods to compute lifetime cancer risk from exposure to project emissions.

Attachment 2 includes the *EMC Planning Group*'s provided CalEEMod output for project construction.

Attachment 3 is the construction health risk assessment. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format

Attachment 4 includes the screening community risk calculations from sources affecting the Construction MEI.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[8] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.[9] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[10] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

Potential increased cancer risk from inhalation of TACs are calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency and duration of exposure. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day). As recommended by the BAAQMD for residential exposures, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. For children at schools and daycare facilities, BAAQMD recommends using the 95th percentile breathing rates. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of

[8] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.
[9] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[10] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD.

Under previous OEHHA and BAAQMD HRA guidance, residential receptors are assumed to be at their home 24 hours a day, or 100 percent of the time. In the 2015 Risk Assessment Guidance, OEHHA includes adjustments to exposure duration to account for the fraction of time at home (FAH), which can be less than 100 percent of the time, based on updated population and activity statistics. The FAH factors are age-specific and are: 0.85 for third trimester of pregnancy to less than 2 years old, 0.72 for ages 2 to less than 16 years, and 0.73 for ages 16 to 70 years. Use of the FAH factors is allowed by the BAAQMD if there are no schools in the project vicinity that would have a cancer risk of one in a million or greater assuming 100 percent exposure (FAH = 1.0).

Functionally, cancer risk is calculated using the following parameters and formulas:

Cancer Risk (per million) = $CPF \times Inhalation\ Dose \times ASF \times ED/AT \times FAH \times 10^6$

Where:

CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = $C_{air} \times DBR \times A \times (EF/365) \times 10^{-6}$

Where:

C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

The health risk parameters used in this evaluation are summarized as follows:

Parameter	***Exposure Type →***	**Infant**		**Child**		**Adult**
	Age Range →	**3rd Trimester**	**0<2**	**2 < 9**	**2 < 16**	**16 - 30**
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 80th Percentile Rate		273	758	631	572	261
Daily Breathing Rate (L/kg-day) 95th Percentile Rate		361	1,090	861	745	335
Inhalation Absorption Factor		1	1	1	1	1
Averaging Time (years)		70	70	70	70	70
Exposure Duration (years)		0.25	2	14	14	14
Exposure Frequency (days/year)		350	350	350	350	350
Age Sensitivity Factor		10	10	3	3	1
Fraction of Time at Home		0.85-1.0	0.85-1.0	0.72-1.0	0.72-1.0	0.73

Non-Cancer Hazards

Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The total HI is calculated as the sum of the HIs for each TAC evaluated and the total HI is compared to the BAAQMD significance thresholds to determine whether a significant non-cancer health impact from a project would occur.

Typically, for residential projects located near roadways with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is diesel particulate matter (DPM). For DPM, the chronic inhalation REL is 5 micrograms per cubic meter ($\mu g/m^3$).

Annual $PM_{2.5}$ Concentrations

While not a TAC, fine particulate matter ($PM_{2.5}$) has been identified by the BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under the California Environmental Quality Act (CEQA). The thresholds of significance for $PM_{2.5}$ (project level and cumulative) are in terms of an increase in the annual average concentration. When considering $PM_{2.5}$ impacts, the contribution from all sources of $PM_{2.5}$ emissions should be included. For projects with potential impacts from nearby local roadways, the $PM_{2.5}$ impacts should include those from vehicle exhaust emissions, $PM_{2.5}$ generated from vehicle tire and brake wear, and fugitive emissions from re-suspended dust on the roads.

Attachment 2: CalEEMod Modeling Output

Gilroy Sport Park - Phase III Improvements_HRA_Tier 2

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	387.00	Space	3.48	154,800.00	0
Arena	100.00	1000sqft	5.62	100,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
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 - Adjusted CO2 Intensity Factor

Land Use - from conceptual site plan

arena acreage adjusted so that total acreage equals 9.1

Construction Phase - No demolition

Trips and VMT - adjusted vendor and hauling trip length to assess local impacts

Vehicle Trips - trip rates from Hexagon Transportation Consultants

Energy Use -

Land Use Change - existing 9.1 acres of cropland will be removed

Sequestration - Existing trees = 0, new trees = 106, net new trees =106

Construction Off-road Equipment Mitigation - Tier 2, DPF Level 2 mitigation

Energy Mitigation - compliance with 2019 BEES

Water Mitigation - compliance with MWELO

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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					
2020	0.0916	0.8839	0.6391	1.2200e-003	0.1743	0.0441	0.2184	0.0883	0.0410	0.1293	0.0000	107.7006	107.7006	0.0251	0.0000	108.3282
2021	0.7980	2.1495	2.0850	4.1200e-003	0.0923	0.1016	0.1939	0.0247	0.0954	0.1202	0.0000	362.9827	362.9827	0.0662	0.0000	364.6378
Maximum	**0.7980**	**2.1495**	**2.0850**	**4.1200e-003**	**0.1743**	**0.1016**	**0.2184**	**0.0883**	**0.0954**	**0.1293**	**0.0000**	**362.9827**	**362.9827**	**0.0662**	**0.0000**	**364.6378**

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					
2020	0.0444	0.9179	0.6942	1.2200e-003	0.1743	0.0146	0.1890	0.0883	0.0146	0.1029	0.0000	107.7005	107.7005	0.0251	0.0000	108.3281
2021	0.7142	2.8235	2.2376	4.1200e-003	0.0923	0.0485	0.1408	0.0247	0.0485	0.0732	0.0000	362.9824	362.9824	0.0662	0.0000	364.6375
Maximum	**0.7142**	**2.8235**	**2.2376**	**4.1200e-003**	**0.1743**	**0.0485**	**0.1890**	**0.0883**	**0.0485**	**0.1029**	**0.0000**	**362.9824**	**362.9824**	**0.0662**	**0.0000**	**364.6375**

	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	**14.73**	**-23.35**	**-7.62**	**0.00**	**0.00**	**56.66**	**20.02**	**0.00**	**53.77**	**29.41**	**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	10-1-2020	12-31-2020	0.9726	0.9590
2	1-1-2021	3-31-2021	0.7393	0.9097
3	4-1-2021	6-30-2021	0.7463	0.9187

4	**7-1-2021**	**9-30-2021**	0.7516	0.9264
		Highest	0.9726	0.9590

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	0.4564	4.0000e-005	4.4800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7000e-003	8.7000e-003	2.0000e-005	0.0000	9.2800e-003
Energy	0.0142	0.1293	0.1086	7.8000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	256.5542	256.5542	0.0143	4.9800e-003	258.3940
Mobile	0.3525	1.6841	3.7079	0.0128	1.0882	0.0117	1.0999	0.2921	0.0109	0.3030	0.0000	1,172.0786	1,172.0786	0.0451	0.0000	1,173.2059
Waste						0.0000	0.0000		0.0000	0.0000	0.5582	0.0000	0.5582	0.0330	0.0000	1.3830
Water						0.0000	0.0000		0.0000	0.0000	13.6664	31.9269	45.5933	1.4069	0.0338	90.8384
Total	**0.8231**	**1.8135**	**3.8210**	**0.0135**	**1.0882**	**0.0215**	**1.1098**	**0.2921**	**0.0208**	**0.3129**	**14.2246**	**1,460.5684**	**1,474.7930**	**1.4993**	**0.0388**	**1,523.8306**

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	0.4564	4.0000e-005	4.4800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7000e-003	8.7000e-003	2.0000e-005	0.0000	9.2800e-003
Energy	0.0110	0.1003	0.0843	6.0000e-004		7.6200e-003	7.6200e-003		7.6200e-003	7.6200e-003	0.0000	219.1597	219.1597	0.0131	4.2800e-003	220.7614
Mobile	0.3525	1.6841	3.7079	0.0128	1.0882	0.0117	1.0999	0.2921	0.0109	0.3030	0.0000	1,172.0786	1,172.0786	0.0451	0.0000	1,173.2059

Waste						0.0000	0.0000		0.0000	0.0000	0.5582	0.0000	0.5582	0.0330	0.0000	1.3830
Water						0.0000	0.0000		0.0000	0.0000	13.6664	31.8497	45.5161	1.4069	0.0338	90.7605
Total	**0.8199**	**1.7845**	**3.7966**	**0.0134**	**1.0882**	**0.0193**	**1.1076**	**0.2921**	**0.0186**	**0.3107**	**14.2246**	**1,423.0967**	**1,437.3213**	**1.4981**	**0.0381**	**1,486.1201**

	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	**0.39**	**1.60**	**0.64**	**1.33**	**0.00**	**10.26**	**0.20**	**0.00**	**10.64**	**0.71**	**0.00**	**2.57**	**2.54**	**0.08**	**1.81**	**2.47**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	75.0480
Vegetation Land Change	-56.4200
Total	**18.6280**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2020	10/14/2020	5	10	
2	Grading	Grading	10/15/2020	11/11/2020	5	20	
3	Building Construction	Building Construction	11/12/2020	9/29/2021	5	230	
4	Paving	Paving	9/30/2021	10/27/2021	5	20	
5	Architectural Coating	Architectural Coating	10/28/2021	11/24/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 3.48

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 150,000; Non-Residential Outdoor: 50,000; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural 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
Site Preparation	7	18.00	0.00	0.00	10.80	2.00	2.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	2.00	2.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	107.00	42.00	0.00	10.80	2.00	2.00	LD_Mix	HDT_Mix	HHDT

Paving	6	15.00	0.00	0.00	10.80	2.00	2.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	21.00	0.00	0.00	10.80	2.00	2.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Site Preparation - 2020

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0903**	**0.0110**	**0.1013**	**0.0497**	**0.0101**	**0.0598**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

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	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	0.0000
Worker	3.0000e-004	2.1000e-004	2.2100e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6231	0.6231	2.0000e-005	0.0000	0.6234

Total	**3.0000e-004**	**2.1000e-004**	**2.2100e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6231**	**0.6231**	**2.0000e-005**	**0.0000**	**0.6234**

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		2.3700e-003	2.3700e-003		2.3700e-003	2.3700e-003	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0903**	**2.3700e-003**	**0.0927**	**0.0497**	**2.3700e-003**	**0.0520**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

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	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	0.0000
Worker	3.0000e-004	2.1000e-004	2.2100e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6231	0.6231	2.0000e-005	0.0000	0.6234
Total	**3.0000e-004**	**2.1000e-004**	**2.2100e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6231**	**0.6231**	**2.0000e-005**	**0.0000**	**0.6234**

3.3 Grading - 2020

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2639	0.1605	3.0000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	26.0588	26.0588	8.4300e-003	0.0000	26.2694
Total	**0.0243**	**0.2639**	**0.1605**	**3.0000e-004**	**0.0655**	**0.0127**	**0.0783**	**0.0337**	**0.0117**	**0.0454**	**0.0000**	**26.0588**	**26.0588**	**8.4300e-003**	**0.0000**	**26.2694**

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	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	0.0000
Worker	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391
Total	**5.0000e-004**	**3.6000e-004**	**3.6800e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0384**	**1.0384**	**3.0000e-005**	**0.0000**	**1.0391**

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					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.2628	0.1899	3.0000e-004		3.8600e-003	3.8600e-003		3.8600e-003	3.8600e-003	0.0000	26.0587	26.0587	8.4300e-003	0.0000	26.2694
Total	**0.0101**	**0.2628**	**0.1899**	**3.0000e-004**	**0.0655**	**3.8600e-003**	**0.0694**	**0.0337**	**3.8600e-003**	**0.0375**	**0.0000**	**26.0587**	**26.0587**	**8.4300e-003**	**0.0000**	**26.2694**

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	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	0.0000
Worker	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391
Total	**5.0000e-004**	**3.6000e-004**	**3.6800e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0384**	**1.0384**	**3.0000e-005**	**0.0000**	**1.0391**

3.4 Building Construction - 2020

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	0.0382	0.3454	0.3033	4.8000e-004		0.0201	0.0201		0.0189	0.0189	0.0000	41.6898	41.6898	0.0102	0.0000	41.9441
Total	**0.0382**	**0.3454**	**0.3033**	**4.8000e-004**		**0.0201**	**0.0201**		**0.0189**	**0.0189**	**0.0000**	**41.6898**	**41.6898**	**0.0102**	**0.0000**	**41.9441**

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	0.0000
Vendor	1.6300e-003	0.0574	0.0146	9.0000e-005	1.3700e-003	1.4000e-004	1.5100e-003	4.0000e-004	1.3000e-004	5.3000e-004	0.0000	8.2419	8.2419	7.4000e-004	0.0000	8.2603
Worker	6.3800e-003	4.5700e-003	0.0473	1.5000e-004	0.0152	1.0000e-004	0.0153	4.0500e-003	9.0000e-005	4.1400e-003	0.0000	13.3333	13.3333	3.2000e-004	0.0000	13.3414
Total	**8.0100e-003**	**0.0620**	**0.0619**	**2.4000e-004**	**0.0166**	**2.4000e-004**	**0.0168**	**4.4500e-003**	**2.2000e-004**	**4.6700e-003**	**0.0000**	**21.5752**	**21.5752**	**1.0600e-003**	**0.0000**	**21.6017**

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	0.0195	0.4240	0.3217	4.8000e-004		8.1300e-003	8.1300e-003		8.1300e-003	8.1300e-003	0.0000	41.6898	41.6898	0.0102	0.0000	41.9440
Total	**0.0195**	**0.4240**	**0.3217**	**4.8000e-004**		**8.1300e-003**	**8.1300e-003**		**8.1300e-003**	**8.1300e-003**	**0.0000**	**41.6898**	**41.6898**	**0.0102**	**0.0000**	**41.9440**

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	0.0000
Vendor	1.6300e-003	0.0574	0.0146	9.0000e-005	1.3700e-003	1.4000e-004	1.5100e-003	4.0000e-004	1.3000e-004	5.3000e-004	0.0000	8.2419	8.2419	7.4000e-004	0.0000	8.2603
Worker	6.3800e-003	4.5700e-003	0.0473	1.5000e-004	0.0152	1.0000e-004	0.0153	4.0500e-003	9.0000e-005	4.1400e-003	0.0000	13.3333	13.3333	3.2000e-004	0.0000	13.3414
Total	**8.0100e-003**	**0.0620**	**0.0619**	**2.4000e-004**	**0.0166**	**2.4000e-004**	**0.0168**	**4.4500e-003**	**2.2000e-004**	**4.6700e-003**	**0.0000**	**21.5752**	**21.5752**	**1.0600e-003**	**0.0000**	**21.6017**

3.4 Building Construction - 2021

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	0.1844	1.6909	1.6078	2.6100e-003		0.0930	0.0930		0.0874	0.0874	0.0000	224.6882	224.6882	0.0542	0.0000	226.0433
Total	**0.1844**	**1.6909**	**1.6078**	**2.6100e-003**		**0.0930**	**0.0930**		**0.0874**	**0.0874**	**0.0000**	**224.6882**	**224.6882**	**0.0542**	**0.0000**	**226.0433**

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	0.0000

Vendor	7.6300e-003	0.2914	0.0717	4.6000e-004	7.4000e-003	3.3000e-004	7.7300e-003	2.1500e-003	3.2000e-004	2.4700e-003	0.0000	43.9823	43.9823	3.7400e-003	0.0000	44.0758
Worker	0.0319	0.0220	0.2328	7.7000e-004	0.0820	5.4000e-004	0.0826	0.0218	4.9000e-004	0.0223	0.0000	69.3307	69.3307	1.5500e-003	0.0000	69.3696
Total	**0.0395**	**0.3133**	**0.3045**	**1.2300e-003**	**0.0894**	**8.7000e-004**	**0.0903**	**0.0240**	**8.1000e-004**	**0.0248**	**0.0000**	**113.3130**	**113.3130**	**5.2900e-003**	**0.0000**	**113.4453**

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	0.1048	2.2848	1.7338	2.6100e-003		0.0438	0.0438		0.0438	0.0438	0.0000	224.6879	224.6879	0.0542	0.0000	226.0431
Total	**0.1048**	**2.2848**	**1.7338**	**2.6100e-003**		**0.0438**	**0.0438**		**0.0438**	**0.0438**	**0.0000**	**224.6879**	**224.6879**	**0.0542**	**0.0000**	**226.0431**

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	0.0000
Vendor	7.6300e-003	0.2914	0.0717	4.6000e-004	7.4000e-003	3.3000e-004	7.7300e-003	2.1500e-003	3.2000e-004	2.4700e-003	0.0000	43.9823	43.9823	3.7400e-003	0.0000	44.0758
Worker	0.0319	0.0220	0.2328	7.7000e-004	0.0820	5.4000e-004	0.0826	0.0218	4.9000e-004	0.0223	0.0000	69.3307	69.3307	1.5500e-003	0.0000	69.3696
Total	**0.0395**	**0.3133**	**0.3045**	**1.2300e-003**	**0.0894**	**8.7000e-004**	**0.0903**	**0.0240**	**8.1000e-004**	**0.0248**	**0.0000**	**113.3130**	**113.3130**	**5.2900e-003**	**0.0000**	**113.4453**

3.5 Paving - 2021

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	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	4.5600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0171**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

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	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	0.0000
Worker	4.6000e-004	3.2000e-004	3.3600e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0020	1.0020	2.0000e-005	0.0000	1.0026
Total	**4.6000e-004**	**3.2000e-004**	**3.3600e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0020**	**1.0020**	**2.0000e-005**	**0.0000**	**1.0026**

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	9.3100e-003	0.2012	0.1730	2.3000e-004		3.3300e-003	3.3300e-003		3.3300e-003	3.3300e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	4.5600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0139**	**0.2012**	**0.1730**	**2.3000e-004**		**3.3300e-003**	**3.3300e-003**		**3.3300e-003**	**3.3300e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

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	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	0.0000
Worker	4.6000e-004	3.2000e-004	3.3600e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0020	1.0020	2.0000e-005	0.0000	1.0026
Total	**4.6000e-004**	**3.2000e-004**	**3.3600e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0020**	**1.0020**	**2.0000e-005**	**0.0000**	**1.0026**

3.6 Architectural Coating - 2021

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	0.5537					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.5559**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

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	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	0.0000
Worker	6.4000e-004	4.4000e-004	4.7100e-003	2.0000e-005	1.6600e-003	1.0000e-005	1.6700e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4028	1.4028	3.0000e-005	0.0000	1.4036
Total	**6.4000e-004**	**4.4000e-004**	**4.7100e-003**	**2.0000e-005**	**1.6600e-003**	**1.0000e-005**	**1.6700e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4028**	**1.4028**	**3.0000e-005**	**0.0000**	**1.4036**

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	0.5537					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1400e-003	0.0235	0.0183	3.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.5549**	**0.0235**	**0.0183**	**3.0000e-005**		**4.8000e-004**	**4.8000e-004**		**4.8000e-004**	**4.8000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

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	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	0.0000
Worker	6.4000e-004	4.4000e-004	4.7100e-003	2.0000e-005	1.6600e-003	1.0000e-005	1.6700e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4028	1.4028	3.0000e-005	0.0000	1.4036
Total	**6.4000e-004**	**4.4000e-004**	**4.7100e-003**	**2.0000e-005**	**1.6600e-003**	**1.0000e-005**	**1.6700e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4028**	**1.4028**	**3.0000e-005**	**0.0000**	**1.4036**

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	0.3525	1.6841	3.7079	0.0128	1.0882	0.0117	1.0999	0.2921	0.0109	0.3030	0.0000	1,172.0786	1,172.0786	0.0451	0.0000	1,173.2059
Unmitigated	0.3525	1.6841	3.7079	0.0128	1.0882	0.0117	1.0999	0.2921	0.0109	0.3030	0.0000	1,172.0786	1,172.0786	0.0451	0.0000	1,173.2059

4.2 Trip Summary Information

	Average Daily Trip Rate		
	Unmitigated	Mitigated	

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	1,378.00	1,825.00	1825.00	2,924,007	2,924,007
Parking Lot	0.00	0.00	0.00		
Total	1,378.00	1,825.00	1,825.00	2,924,007	2,924,007

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
Arena	9.50	7.30	7.30	0.00	81.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Arena	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Parking Lot	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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	109.9400	109.9400	0.0110	2.2700e-003	110.8927
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	115.7805	115.7805	0.0116	2.4000e-003	116.7838

NaturalGas Mitigated	0.0110	0.1003	0.0843	6.0000e-004		7.6200e-003	7.6200e-003		7.6200e-003	7.6200e-003	0.0000	109.2197	109.2197	2.0900e-003	2.0000e-003	109.8687
NaturalGas Unmitigated	0.0142	0.1293	0.1086	7.8000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	140.7737	140.7737	2.7000e-003	2.5800e-003	141.6103

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					
Arena	2.638e+006	0.0142	0.1293	0.1086	7.8000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	140.7737	140.7737	2.7000e-003	2.5800e-003	141.6103
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	0.0000
Total		**0.0142**	**0.1293**	**0.1086**	**7.8000e-004**		**9.8300e-003**	**9.8300e-003**		**9.8300e-003**	**9.8300e-003**	**0.0000**	**140.7737**	**140.7737**	**2.7000e-003**	**2.5800e-003**	**141.6103**

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					
Arena	2.0467e+006	0.0110	0.1003	0.0843	6.0000e-004		7.6200e-003	7.6200e-003		7.6200e-003	7.6200e-003	0.0000	109.2197	109.2197	2.0900e-003	2.0000e-003	109.8687
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	0.0000
Total		**0.0110**	**0.1003**	**0.0843**	**6.0000e-004**		**7.6200e-003**	**7.6200e-003**		**7.6200e-003**	**7.6200e-003**	**0.0000**	**109.2197**	**109.2197**	**2.0900e-003**	**2.0000e-003**	**109.8687**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Arena	826000	108.6535	0.0109	2.2500e-003	109.5951
Parking Lot	54180	7.1269	7.1000e-004	1.5000e-004	7.1887
Total		**115.7805**	**0.0116**	**2.4000e-003**	**116.7838**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Arena	781600	102.8131	0.0103	2.1300e-003	103.7040
Parking Lot	54180	7.1269	7.1000e-004	1.5000e-004	7.1887
Total		**109.9400**	**0.0110**	**2.2800e-003**	**110.8927**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.4564	4.0000e-005	4.4800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7000e-003	8.7000e-003	2.0000e-005	0.0000	9.2800e-003
Unmitigated	0.4564	4.0000e-005	4.4800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7000e-003	8.7000e-003	2.0000e-005	0.0000	9.2800e-003

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	0.0554					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4006					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2000e-004	4.0000e-005	4.4800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7000e-003	8.7000e-003	2.0000e-005	0.0000	9.2800e-003
Total	**0.4564**	**4.0000e-005**	**4.4800e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.7000e-003**	**8.7000e-003**	**2.0000e-005**	**0.0000**	**9.2800e-003**

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	0.0554					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	0.4006					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.2000e-004	4.0000e-005	4.4800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7000e-003	8.7000e-003	2.0000e-005	0.0000	9.2800e-003
Total	**0.4564**	**4.0000e-005**	**4.4800e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.7000e-003**	**8.7000e-003**	**2.0000e-005**	**0.0000**	**9.2800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	45.5161	1.4069	0.0338	90.7605
Unmitigated	45.5933	1.4069	0.0338	90.8384

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Arena	43.077 / 2.7496	45.5933	1.4069	0.0338	90.8384
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000

Total		**45.5933**	**1.4069**	**0.0338**	**90.8384**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Arena	43.077 / 2.58187	45.5161	1.4069	0.0338	90.7605
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**45.5161**	**1.4069**	**0.0338**	**90.7605**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.5582	0.0330	0.0000	1.3830
Unmitigated	0.5582	0.0330	0.0000	1.3830

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Arena	2.75	0.5582	0.0330	0.0000	1.3830
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.5582**	**0.0330**	**0.0000**	**1.3830**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Arena	2.75	0.5582	0.0330	0.0000	1.3830
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.5582**	**0.0330**	**0.0000**	**1.3830**

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

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	18.6280	0.0000	0.0000	18.6280

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	9.1 / 0	-56.4200	0.0000	0.0000	-56.4200
Total		**-56.4200**	**0.0000**	**0.0000**	**-56.4200**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	106	75.0480	0.0000	0.0000	75.0480
Total		**75.0480**	**0.0000**	**0.0000**	**75.0480**

Attachment 3: Construction Health Risk Calculations

Gilroy Sports Park Phase 3, Gilroy, CA

DPM Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2020-2021	Construction	0.1457	CON_DPM	291.4	0.08871	1.12E-02	33126.35	3.37E-07

Construction Hours

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

Gilroy Sports Park Phase 3, Gilroy, CA

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2020-2021	Construction	CON_FUG	0.1130	226.0	0.06880	8.67E-03	33126.348	2.62E-07

Construction Hours

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

Gilroy Sports Park Phase 3, Gilroy, CA - Construction Health Impact Summary

Maximum Impacts at MEI Location - Unmitigated

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Infant/Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2020-2021	0.0234	0.0176	**4.2**	**0.1**	**0.005**	**0.04**

Gilroy Sports Park Phase 3, Gilroy, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

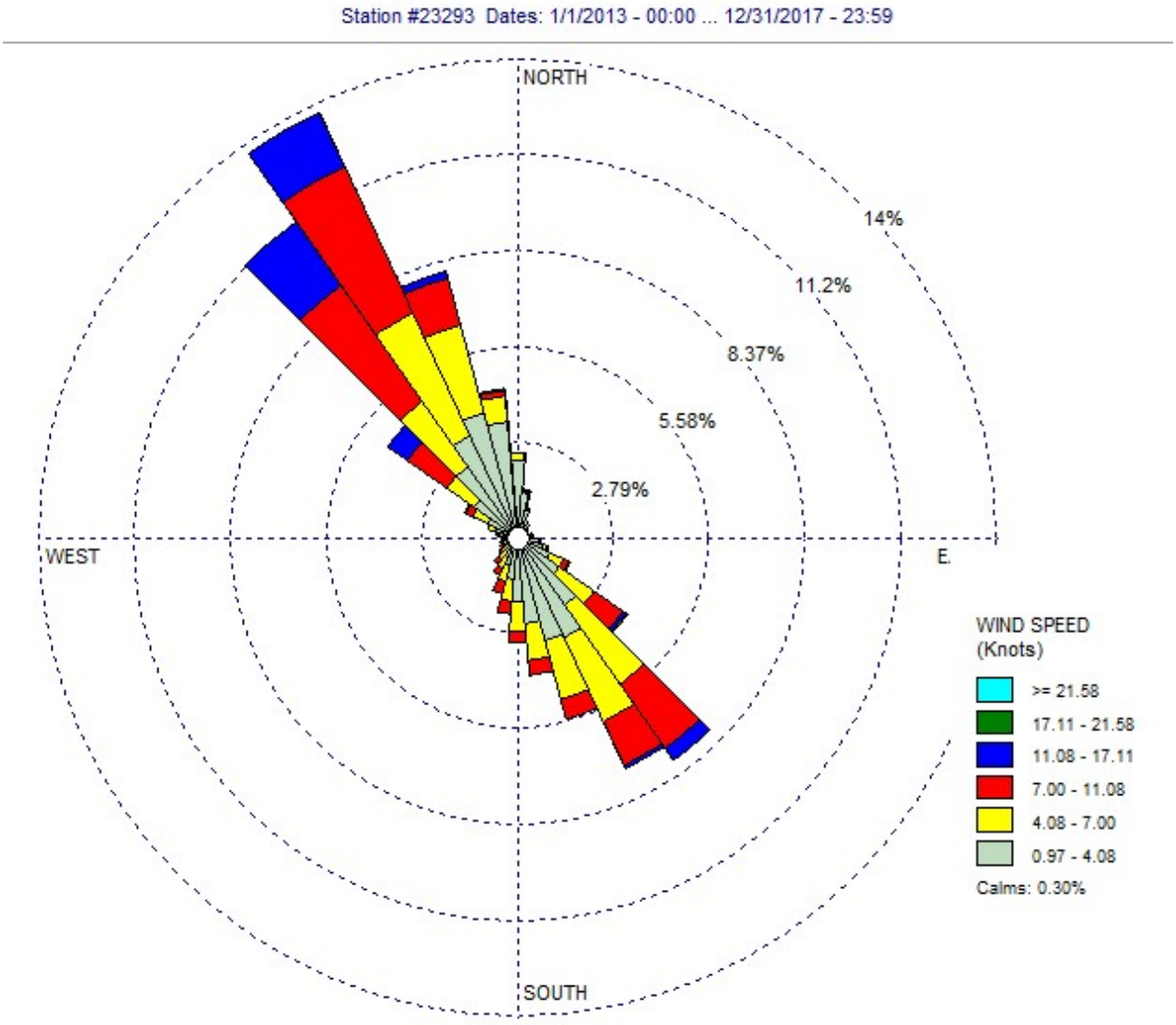
* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum	
							Modeled					
Exposure Year	Exposure Duration (years)	Age	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2020-2021	0.0234	10	0.32	2020-2021	0.0234	-	-		
1	1	0 - 1	2020-2021	0.0234	10	3.85	2020-2021	0.0234	1	0.07	0.0176	0.0410
2	1	1 - 2	0	0.0000	10	0.00		0.0000	1	0.00		
3	1	2 - 3	0	0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4	0	0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5	0	0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6	0	0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7	0	0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8	0	0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9	0	0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10	0	0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11	0	0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12	0	0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13	0	0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14	0	0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15	0	0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16	0	0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17	0	0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18	0	0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19	0	0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20	0	0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21	0	0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22	0	0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23	0	0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24	0	0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25	0	0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26	0	0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27	0	0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28	0	0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29	0	0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30	0	0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**4.2**				**0.07**		

* Third trimester of pregnancy

San Martin Airport 2013 – 2017 Wind Rose



Attachment 4: Screening Community Risk Calculations

U.S. 101 Health Risk Screening

Link 1203 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.628	91.218	0.083	0.034
25 ft W	0.523	76.164	0.070	0.026
50 ft W	0.414	60.609	0.055	0.021
75 ft W	0.346	50.870	0.046	0.018
100 ft W	0.300	44.122	0.040	0.016
200 ft W	0.200	29.702	0.027	0.011
300 ft W	0.152	22.664	0.020	0.009
400 ft W	0.124	18.502	0.016	0.007
500 ft W	0.105	15.748	0.014	0.007
750 ft W	0.076	11.469	0.010	0.006
1000 ft W	0.059	8.976	0.008	0.004
10 ft E	0.549	77.439	0.072	0.039
25 ft E	0.453	64.091	0.059	0.032
50 ft E	0.354	50.241	0.046	0.026
75 ft E	0.294	41.784	0.038	0.023
100 ft E	0.253	36.045	0.033	0.020
200 ft E	0.167	23.909	0.022	0.014
300 ft E	0.125	18.003	0.016	0.010
400 ft E	0.100	14.523	0.013	0.009
500 ft E	0.084	12.198	0.011	0.007
750 ft E	0.059	8.560	0.007	0.005
1000 ft E	0.044	6.455	0.005	0.004

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Santa Clara
Roadway Direction	East-West
Side of the Roadway	South
Distance from Roadway	910 feet
	Const MEI
Annual Average Daily Traffic (ADT)	19,640

Results

Santa Clara County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

0.033 ($\mu g/m^3$)

Cancer Risk

1.31 (per million)

Monterey Road

Cumulative plus project volumes from traffic report

Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

0.90

(per million)

Note that EMFAC2014 predicts DSL PM2.5 aggragate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehciles traveling at 30 mph for Bay Area

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using ~~CALINE4~~ Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.