

Appendix C

Air Quality, Greenhouse Gas, & Health Risk Assessment

MEMO

Date: **April 3, 2018**

To: **Steve Abbs, Davidon Homes**

From: **Michael Keinath**

Subject: **CONSTRUCTION AIR QUALITY, GREENHOUSE GAS, AND
HEALTH RISK ASSESSMENT FOR CEQA ANALYSIS
DANVILLE, CALIFORNIA**

Dear Mr. Abbs:

At the request of Davidon Homes, Ramboll US Corporation (Ramboll) conducted California Environmental Quality Act (CEQA) analyses of construction-related criteria air pollutants (CAPs) and precursors, as well as greenhouse gases (GHGs), and conducted a health risk assessment (HRA) for the construction of the Magee Preserve residential development project in Danville, California (the "Project"). An analysis of GHGs from the operations of the Project is also included.

The Project Area location is presented in **Figure 1**. The Project will be comprised of 69 new single family homes, including 7 adjoining casitas,¹ on land that is currently used for cattle grazing. Sixty-six of the single family homes will be constructed on the large portion of the proposed Project site primarily south of Diablo Road, as shown in **Figure 1**. Three of the single family homes will be constructed on the small portion of the proposed Project to the west of the main portion along McCauley Road. The proposed Project land use assumptions are summarized in **Tables 1** and **6**.

Ramboll followed CEQA Air Quality Guidelines adopted by the Bay Area Air Quality Management District (BAAQMD or District) in May 2017² to determine whether the GHGs, CAPs, and local risk and hazard impacts from the construction of the Project, and GHGs from the operation of the Project, would be below thresholds of significance listed in the Guidelines. A project's impact on air quality is considered significant if it exceeds the significance thresholds listed in those Guidelines.

SUMMARY OF RESULTS

Despite conservative assumptions, Ramboll's analysis indicates that the Project would not exceed existing thresholds of significance for construction-related CAP and precursor emissions. Project operational-related GHGs would not exceed the 2020 thresholds of significance nor would they exceed the projected 2030

Ramboll
201 California Street
Suite 201
San Francisco, CA 94111
USA

T +1 415 796 1950
F +1 415 398 5812
www.ramboll.com

¹ Seven casitas will be constructed as part of the proposed Project. For the operational GHG analysis, it was assumed that ten additional casitas, for a total of 17, would be constructed by the home owners.

² BAAQMD. California Environmental Quality Act (CEQA) Air Quality Guidelines. 2017. May. Available online at: http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

thresholds. With respect to Project construction health risk impacts on offsite receptors, the Project, which includes the use of all Tier 2 off-road engines with diesel particulate filters (DPF), would be below the significance thresholds for all health risks analysed, including cancer risk, non-cancer acute health index (HI), non-cancer chronic HI, and fine particulate matter (PM_{2.5}) concentration. The construction GHG and CAP emissions are summarized in **Table 5** and the HRA results are summarized in **Table 16**.

With respect to cumulative health risk during construction, there are no highways or major surface streets with traffic exceeding the 10,000 vehicles per day screening level within 1000 feet of the Project. There is one stationary source of emissions, the San Ramon Valley Fire Station #33, within 1000 feet of the Project; however, the BAAQMD has no available information on this source and no emissions are reported in the Stationary Source Screening Tool; therefore, it was not included in this analysis. The evaluation of health risk impacts on the Project (i.e., new sensitive receptors) is not required per the Guidelines.

DISCUSSION OF RESULTS

The following sections present the details and results for three analyses:

1. Criteria Air Pollutants and Precursors from Construction Activities;
2. Greenhouse Gases; and
3. Community Risks and Hazards from Construction.

CONSTRUCTION CRITERIA AIR POLLUTANTS AND PRECURSORS

Ramboll primarily utilized the California Emission Estimator Model version 2016.3.1 (CalEEMod®)³ to quantify CAP emissions for the Project. CalEEMod® is a statewide program designed to calculate both criteria pollutant and GHG emissions for development projects in California. CalEEMod® provides a simple platform to calculate both construction emissions and operational emissions from a land use project. It calculates both the daily maximum and annual average for criteria pollutants as well as total or annual GHG emissions.

CalEEMod® utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. CalEEMod® uses sources such as the US Environmental Protection Agency (USEPA) AP-42 emission factors,⁴ California Air Resources Board's (CARB) on-road and off-road equipment emission models such as the Emission FACTor model (EMFAC) and the Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the California Energy Commission (CEC) and CalRecycle.

The total CAP emissions from construction activities were calculated using CalEEMod® based on the land use assumptions (shown in **Table 1**), construction phasing schedule (**Table 2**), equipment lists (**Table 3**), haul trucks for material import, worker trips, and vendor trips for construction material deliveries (**Table 4**) and CalEEMod® default parameters. Emissions were calculated assuming all off-road equipment have Tier 2 engines with diesel particulate filters (DPF). The total estimated construction CAP emissions were divided by construction duration to estimate the average daily construction emissions (in pounds per day).

³ California Air Pollution Control Officers Association (CAPCOA). 2016. California Emissions Estimator Model. Available at: <http://www.CalEEMod.com/>.

⁴ The USEPA maintains a compilation of Air pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: <http://epa.gov/ttnchie1/ap42/>.

Table 5 shows the total annual emissions by phase and the average daily emissions by year for the Project. The maximum construction-related Project daily emissions for each pollutant are: 9.1 lb/day ROG in 2022, 26 lb/day NO_x in 2019, 0.15 lb/day exhaust PM₁₀ in 2020 and 0.15 lb/day exhaust PM_{2.5} in 2020. As shown in the table, none of these emissions exceed the significance thresholds.

GREENHOUSE GASES

Construction-related GHG emissions were quantified using CalEEMod® based on Project specific data including the construction phasing schedule, the equipment list, haul trucks for material import, and vendor trips for construction material deliveries and CalEEMod® default parameters. **Table 5** shows the total annual construction GHG emissions by phase and year. The maximum annual construction GHG emissions are 519 metric tons (MT) carbon dioxide equivalent (CO₂e) in 2019. BAAQMD has not provided a significance threshold for construction-related GHG emissions but requires that projects quantify and disclose such emissions.

CO₂e emissions from proposed Project operations were also calculated using CalEEMod®. Land use assumptions for operational GHG emissions are shown in **Table 6**. The Project will also include electric vehicle (EV) charging stations in the homes. Emissions from changes in vegetation and from installing electric vehicle charging stations in all single-family homes were calculated outside CalEEMod® and are shown in **Table 7** and **Table 8**, respectively. **Table 9** shows the calculation of the projected service population 2030 GHG threshold. Additionally, the Project Sponsor has indicated that all residences will be zero net electricity homes, in accordance with the proposed California Energy Commission's (CEC) 2019 Title 24 standards.⁵ Because these homes will generate as much clean, renewable electricity as they consume over the course of a year, emissions from electricity use for these homes were assumed to be zero over the course of the year; natural gas emissions were assumed to meet 2016 Title 24 standards as a conservative assumption. Total GHG emissions from the proposed Project operations are estimated to be 581 MT CO₂e. The breakdown of GHG emissions from the proposed Project is shown in **Table 10**.

BAAQMD has set a 2020 threshold for GHGs of 1,100 MT CO₂e/year or 4.6 MT CO₂e per service population per year. Although, as noted below, the Project would fall well below this threshold, state legislation calls for further reductions in GHG generation by 2030. Because the Project is expected to be completed after 2020, this analysis addresses an anticipated 2030 GHG threshold, even though such a threshold has not yet been set by the BAAQMD. Ramboll calculated a projected 2030 threshold using the same methods the BAAQMD used for the 2020 threshold, as shown in **Table 9**. The projected threshold was found to be 2.7 MT CO₂e per service population per year. As shown in **Table 10**, the Project is under the 1,100 MT bright line threshold and does not exceed either the 2020 or projected 2030 service population threshold.

In the event that the proposed 2019 Title 24 zero net electricity standards are not adopted, in order to mitigate the GHG impact to be less than the 2030 threshold, the Project would develop and implement a Project-specific Greenhouse Gas Reduction Plan (GGRP). The GGRP would be prepared by a qualified expert and subject to the approval by the City. It would demonstrate what additional or recurring mitigation efforts are expected to be required, or that no such mitigation efforts are required to meet the 2.7 MT CO₂e threshold. The Plan would outline specific methods, if needed, to achieve a GHG reduction performance standard for total project GHG emissions of no more than the 2.7 MT CO₂e service population threshold. The GHG Reduction Plan would specify the methods, and quantify

⁵ California Energy Commission (CEC). 2017. Presentation - Proposed 2019 Building Energy Efficiency Standards ZNE Strategy. August 24. Available at: http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN220876_20170824T105443_82217_ZNE_Strategy_Presentation.pdf

the projected emissions reduction that would be achieved. Methods that may be included in the GHG Reduction Plan include, but are not limited to, the following:

- Implement mitigation measures to reduce project-generated GHG emissions from mobile sources (vehicular traffic) (e.g. TRAFFIX bus subsidies).
- Purchase GHG emission offsets.

The GGRP may be modified or amended to address changes in emissions, substitution of methods by which the Project achieves the performance standard, and advances in the science, circumstance or technology related to greenhouse gas reduction, avoidance or offsets. These factors may eventually result in a GGRP that demonstrates the Project will achieve the performance standard without further mitigation. Such modifications or amendments shall be effective only if prepared by a qualified expert, and approved by the City.

LOCAL COMMUNITY RISK AND HAZARD IMPACTS

Toxic Air Contaminant Emissions Calculation

The toxic air contaminant (TAC) emissions associated with the Project construction were calculated using the same methodology as the construction CAP emissions calculation with the following conservative assumptions and exceptions:

1. Diesel Particulate Matter (DPM): DPM emissions were used to evaluate the cancer risk and non-cancer chronic HI due to the Project construction. In this analysis, both onsite (i.e., construction equipment) and local offsite (i.e., construction mobile sources) PM₁₀ exhaust emissions⁶ were calculated as DPM and modeled (as discussed in the next section) within the Project boundary. This analysis also conservatively assumed the small fraction of non-diesel PM₁₀ (i.e., PM₁₀ emissions from gasoline fueled passenger vehicles) was DPM, which has greater human health impacts.
2. Diesel TOG: Diesel total organic gases (TOG) emissions were used to evaluate the non-cancer acute HI due to the Project construction. ROG emissions were converted to TOG emissions using EPA conversion factors. The modeled emissions were calculated using the total emissions averaged over 8 hr/day and the days of construction by phase. Off-gassing TOG emissions from architectural coating (non-exhaust) were excluded from the HRA.
3. PM_{2.5}: Exhaust PM_{2.5} emissions were used to evaluate the PM_{2.5} concentration due to the Project construction. The modeled emissions were calculated using the same conservative assumptions as the DPM calculation. In addition, the Project construction would need to meet the best management practice as required by the BAAQMD significance threshold to minimize fugitive dust emissions.

The modelled TAC emissions used for the HRA are summarized in **Table 11**.

Air Dispersion Modeling

Ramboll analyzed Project construction-related risks by estimating ambient air concentrations of DPM, TOGs and PM_{2.5}. To estimate air concentrations of DPM, TOGs and PM_{2.5}, Ramboll used AERMOD, a Gaussian air dispersion model. AERMOD incorporates emission factors, source parameters and five full years of meteorological data to estimate air concentrations of inert pollutants. Both on-road and off-

⁶ Local offsite (mobile source) emissions were calculated by scaling CalEEMod® on-road emissions by the modelled haul road length relative to the CalEEMod® default trip length to evaluate localized impacts.

road construction activity were modeled using arrays of adjacent volume sources.⁷ The source parameters are summarized in **Table 12**. The model was run with 2011 - 2015 surface meteorological data from the Livermore Municipal Airport Meteorological Station (KLVK, WBAN #23285) provided by National Oceanic and Atmospheric Administration's (NOAA) National Climatic Data Center (NCDC) and upper air data from Oakland Airport (KOAK). These stations provide meteorological data that are representative for the vicinity of the Project.

The calculation of concentrations of DPM and PM_{2.5} for use in a health risk assessment (HRA) requires the selection of appropriate concentration averaging times. DPM emissions were modeled over 5 years and the period average DPM concentration was used to calculate cancer risks and chronic non-cancer hazards associated with DPM emissions. The maximum PM_{2.5} emissions were similarly modeled over 5 years to determine the maximum annual PM_{2.5} emissions. The maximum hourly concentration was modeled to determine acute hazards associated with speciated emissions of diesel TOGs. Due to the limited built-up environment surrounding the Project area, the model was run with the default "rural" option. Concentrations were calculated across a grid of receptors spaced 20-meters apart within 500 meters of the Project boundary and 40-meters apart extending 1000 meters from the Project boundary. The receptor height was set to 1.8 m above ground level in accordance with BAAQMD CEQA Guidance.⁸ In an effort to present the most conservative scenario, all receptors were considered a "resident child" as this receptor type is assumed to be home all day virtually every day during construction. The Project boundary is shown in **Figure 1**, the source configurations are shown in **Figures 2 and 3**, and the modelled receptors are presented in **Figure 4**.

Health Risk Assessment

In February 2015, OEHHA released the updated Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015), which combines information from previously-released and adopted technical support documents to delineate OEHHA's revised risk assessment methodologies based on current science. The BAAQMD has issued HRA Guidelines formally adopting the OEHHA 2015 Guidance Manual.⁹ This analysis followed the recommended methodology from the 2015 OEHHA Hot Spots Guidance. In this analysis, the HRA conservatively evaluated Project impacts due to construction emissions at all receptors using default exposure assumptions for a resident child from OEHHA (2015) unless otherwise noted.¹⁰ The resident child scenario assumes a much higher daily breathing rate and age-sensitivity factor (ASF)¹¹ than other sensitive receptor populations and therefore is the most conservative scenario to evaluate for this analysis. The exposure parameters used to estimate excess lifetime cancer risks for a resident child are presented in **Table 13**.

The dose estimated for each exposure pathway is a function of the concentration of a chemical and the intake of that chemical. The intake factor for inhalation, IF_{inh}, can be calculated as follows:

$$IF_{inh} = \frac{DBR * FAH * EF * ED * CF}{}$$

⁷ There is no BAAQMD guidance on source selection for construction modeling. This source configuration is consistent with methodology used to develop South Coast Air Quality Management District Localized Significance Thresholds (LST).

⁸ Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act (CEQA) Air Quality Guidelines. May. Available at: http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

⁹ BAAQMD. 2016. Proposed Health Risk Assessment Guidelines. Air Toxics NSR program. January. Available at: http://www.baaqmd.gov/~media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en

¹⁰ Bay Area Air Quality Management District (BAAQMD). 2010. BAAQMD Air Toxics NSR Program Health Risk Screening Analysis (HRSA) Guidelines. January.

¹¹ Ibid.

AT

Where:

IF_{inh}	=	Intake Factor for Inhalation ($m^3/kg\text{-day}$)
DBR	=	Daily Breathing Rate ($L/kg\text{-day}$)
FAH	=	Fraction of Time at Home (unitless)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (years)
AT	=	Averaging Time (days)
CF	=	Conversion Factor, 0.001 (m^3/L)

The chemical intake or dose is estimated by multiplying the inhalation intake factor, IF_{inh} , by the chemical concentration in air, C_i . When coupled with the chemical concentration, this calculation is mathematically equivalent to the dose algorithm given in the OEHHA Hot Spots guidance (Cal/EPA 2003).

The toxicity assessment characterizes the relationship between the magnitude of exposure and the nature and magnitude of adverse health effects that may result from such exposure. This HRA evaluated theoretical exposures to TACs for two categories of potential adverse health effects, cancer and non-cancer endpoints. Toxicity values used to estimate the likelihood of adverse effects occurring in humans at different exposure levels are identified as part of the toxicity assessment component of a risk assessment.

Excess lifetime cancer risk and chronic hazard quotient (HQs) calculations for Project construction utilized the toxicity values for DPM. Acute HQ calculations utilized the toxicity values for TACs from speciated diesel TOG for all source categories (Cal/EPA 2016)¹². The speciation profiles are shown in **Table 14** and toxicity values are as presented in **Table 15**. Ramboll included toxicity for DPM, and acute toxicity values for speciated diesel TOG for all source categories (Cal/EPA 2016).

As shown in **Table 13**, an ASF of 10 for children was applied to the resident child, assuming the resident child receptors are between the third trimester of pregnancy in fetus to age two.¹³ Construction emissions only impact receptors in the vicinity of the Project during the 10 hours when construction equipment operates; however, the emissions modeled during the 10 hours each day were adjusted using a factor of 2.4 to correct for 24 hour per day period averaging in the air modeling outputs. Because a resident child is assumed to be exposed to emissions 24 hours a day and 7 days a week throughout the entire construction duration a modeling adjustment factor (MAF) was not needed. These concentrations represent the theoretical maximum average concentrations over the construction period to which the child receptor might be exposed. The supporting files for the air modeling analysis are included in Attachment B.

Cancer risk, chronic HI, and acute HI were calculated from ambient annual and hourly concentrations using intake factors, cancer potency factors, and chronic reference exposure levels calculated

¹² Cal/EPA. 2016. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. May. Available at: <http://www.arb.ca.gov/toxics/healthval/contable.pdf>

¹³ Bay Area Air Quality Management District (BAAQMD). 2010. BAAQMD Air Toxics NSR Program Health Risk Screening Analysis (HRSA) Guidelines. January.

consistent with the 2015 OEHHA Hot Spots Guidance¹⁴ and 2010 BAAQMD guidance¹⁵. As shown in **Table 16**, the cancer risk, chronic HI, acute HI, and annual PM_{2.5} concentration are below the BAAQMD thresholds. The Universal Transverse Mercator (UTM) coordinates of the maximally exposed individual for cancer risk, chronic HI, acute HI, and PM_{2.5} concentrations are noted in **Table 16**.

CLOSING

The conservative analysis described herein indicates that the unmitigated and mitigated construction of the proposed Project do not exceed the thresholds of significance for criteria pollutant emissions according to the current BAAQMD CEQA Air Quality Guidelines.

The estimated cancer risk, chronic and acute HI, and annual average PM_{2.5} concentration associated with construction of the Project do not exceed the significance thresholds.

The proposed Project operational GHG emissions do not exceed the 2020 thresholds of significance, nor do they exceed the projected 2030 service population threshold with adoption of the proposed 2019 Title 24 zero net electricity standards. If those standards are not adopted, a Greenhouse Gas Reduction Plan would ensure that the 2.7 MT CO₂e per service population threshold would not be exceeded.

Attachments:

- Tables

- Figures

- Attachment A: CalEEMod® Output Files – Construction and Operational

¹⁴ Cal/EPA. 2003. The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Office of Environmental Health Hazard Assessment. August.

¹⁵ BAAQMD. 2010. Air Toxics NSR Program Health Risk Screening Analysis (HRSA) Guidelines. January

TABLES

Table 1
Construction Land Uses
Magee Preserve Development
Danville, California

Total Number of Main Houses - 69

Total Number of Casitas - 7

Average Lot Size - 12,732 ft²

Overall Site Preparation

Land Use Type	Land Use Subtype	Unit Amount ¹	Size Metric	Lot Acreage	Square Feet	Population
Residential	Single Family Housing	76	DU	20.17	266,461	191
Parking	Other Asphalt	31.34	acres	31.34	1,365,170	0
Total				51.51	1,631,631	191

Model Home Construction²

Land Use Type	Land Use Subtype	Unit Amount ¹	Size Metric	Lot Acreage	Square Feet	Population
Residential	Single Family Housing	12	DU	3.22	42,479	30

Home Production

Land Use Type	Land Use Subtype	Unit Amount ¹	Size Metric	Lot Acreage	Square Feet	Population
Residential	Single Family Housing	64	DU	16.95	223,982	161

Notes:

¹. Casitas were included in the model as separate residential units as "Single Family Housing."

². According to the Project Sponsor, model homes consist of three models on lots 56-58, and first occupancies on Lots 48-54, as well as Lot 60.

Abbreviations:

DU - dwelling unit

ft² - square feet

Table 2
Construction Schedule¹
Magee Preserve Development
Danville, California

CalEEMod Run	Phase Name	CalEEMod Phase Type	Phase Start Date	Phase End Date	Days per Week	Number of Days
Overall Site Preparation ²	Demolition	Demolition	1/1/2019	1/9/2019	5	7
	Site Preparation 1	Site Preparation	1/10/2019	1/21/2019	5	8
	Grading	Grading	1/22/2019	5/6/2019	5	75
	Trenching	Trenching	5/7/2019	8/19/2019	5	75
	Paving	Paving	8/20/2019	9/9/2019	5	15
	Site Preparation - Landscaping	Site Preparation	9/10/2019	11/10/2019	5	44
Model Home Construction	Building Construction	Building Construction	10/9/2019	6/20/2020	5	183
	Architectural Coating	Architectural Coating	6/21/2020	7/9/2020	5	14
House Production	Building Construction	Building Construction	10/9/2019	8/1/2022	5	734
	Architectural Coating	Architectural Coating	8/2/2022	10/9/2022	5	49

Notes:

¹. Construction schedule provided by project sponsor and adapted for CalEEMod by Ramboll Environ.

². Overall site preparation includes 6,700 ft² of demolition.

Table 3
Construction Off-Road Equipment List
Magee Preserve Development
Danville, California

Subphase	Equipment Type	Quantity	Hours per Day	Total Days	HP
Overall Site Preparation					
Demolition	Rubber Tired Dozers	2	8	7	247
	Excavators	3	8	7	158
	Concrete/Industrial Saws	1	8	7	81
Site Preparation 1	Tractors/Loaders/Backhoes	4	8	8	97
	Rubber Tired Dozers	3	8	8	247
Grading	Rubber Tired Dozers	1	8	75	247
	Excavators	2	8	75	158
	Graders	1	8	75	187
	Tractors/Loaders/Backhoes	2	8	75	97
	Scrapers	2	8	75	367
Trenching ¹	Excavators	2	8	75	158
	Tractors/Loaders/Backhoes	4	8	75	97
Paving	Pavers	2	8	15	130
	Rollers	2	8	15	80
	Paving Equipment	2	8	15	132
Site Preparation - Landscaping ¹	Tractors/Loaders/Backhoes	2	8	44	97
Model Homes					
Building Construction	Tractors/Loaders/Backhoes	3	7	183	97
	Generator Sets	1	8	183	84
	Welders	1	8	183	46
	Cranes	1	7	183	231
	Forklifts	3	8	183	89
Architectural Coating	Air Compressors	1	6	14	78
Home Production					
Building Construction	Welders	1	8	734	46
	Cranes	1	7	734	231
	Forklifts	3	8	734	89
	Tractors/Loaders/Backhoes	3	7	734	97
	Generator Sets	1	8	734	84
Architectural Coating	Air Compressors	1	6	49	78

Notes:

¹. Trenching and Landscaping equipment types and quantities provided by project sponsor. All other equipment data is CalEEMod default.

Abbreviations:

HP - horsepower

Table 4
Construction Trips
Magee Preserve Development
Danville, California

Vehicle Type	Vehicle Class	Trip Length (miles)
Worker	LD Mix	10.8
Vendor	HDT Mix	7.3
Hauling	HHDT	20

Phase Name	Worker Trip Number	Vendor Trip Number	Hauling Trip Number
	trips / day ¹	trips / day ¹	trips / phase ¹
Site Preparation²			
Demolition	5	0	30
Site Preparation 1	10	0	15
Grading	20	0	15
Trenching	10	0	50
Paving	15	0	200
Site Preparation - Landscaping	10	0	25
Model Homes²			
Building Construction	4.0	1.0	0
Architectural Coating	1.0	0	0
Home Production²			
Building Construction	23	7.0	0
Architectural Coating	5.0	0	0

Notes:

¹. All trip data represents on-way trips.

². All trip rates are default CalEEMod trips rates based on project phase type and land use type.

Table 5
Project Construction CAP Emissions
Magee Preserve Development
Danville, California

Phase	Year	Source	CAP Emissions ¹				CO ₂ e
			ROG	NOx	PM ₁₀	PM _{2.5}	
			tons / year				MT / year
Site Preparation	2019	On-Site	0.17	3.2	0.014	0.014	342
		Off-Site	0.0071	0.056	2.9E-04	2.8E-04	24
Model Homes	2019	On-Site	0.032	0.71	0.0041	0.0041	71
		Off-Site	5.9E-04	0.0042	4.0E-05	4.0E-05	1.7
	2020	On-Site	0.37	1.5	0.0084	0.0084	145
		Off-Site	0.0011	0.0077	5.0E-05	4.0E-05	3.4
Home Production	2019	On-Site	0.032	0.71	0.0041	0.0041	71
		Off-Site	0.0036	0.029	2.4E-04	2.2E-04	10
	2020	On-Site	0.14	3.1	0.018	0.018	305
		Off-Site	0.014	0.11	7.0E-04	6.6E-04	45
	2021	On-Site	0.14	3.1	0.018	0.018	304
		Off-Site	0.012	0.10	3.6E-04	3.4E-04	44
	2022	On-Site	1.7	1.8	0.011	0.011	182
		Off-Site	0.0070	0.055	2.1E-04	1.9E-04	26

Year	CAP Emissions ²				CO ₂ e
	ROG	NOx	PM ₁₀	PM _{2.5}	
	lb / day				MT / year
2019	1.3	26	0.13	0.13	519
2020	2.9	26	0.15	0.15	499
2021	0.84	17	0.10	0.10	348
2022	9.1	10	0.059	0.059	208
BAAQMD Threshold	54	54	82	54	--

Notes:

¹ Emissions assume all off-road equipment is Tier 2 with Level 3 VDECs.

² Daily emissions averaged over period of 365 days.

Abbreviations:

CAP - Criteria Air Pollutants

GHG - Greenhouse Gases

ROG - reactive organic gases

NOx - nitrogen oxides

PM₁₀ - particulate matter less than 10 microns

PM_{2.5} - particulate matter less than 2.5 microns

BAAQMD - Bay Area Air Quality Management District

Table 6
Operational Land Uses
Magee Preserve Development
Danville, California

Total Number of Main Houses - 69

Total Number of Casitas - 17

Average Lot Size - 12,732 ft²

Land Use Type	Land Use Subtype	Unit Amount ¹	Size Metric	Lot Acreage ²	Square Feet ²	Population ²
Residential	Single Family Housing	86	DU	20.17	271,935	216
Total				20.17	271,935	216

Notes:

- ¹. Casitas were included in the model as separate residential units as "Single Family Housing." An additional 10 casitas are included in the Operational analysis; it is assumed that these would be built by the homeowners.
- ². Lot acreage and square footage based on average lot size and total DU square footage. Population estimate provided by Project sponsor and scaled for additional casitas.

Abbreviations:

DU - dwelling unit

ft² - square feet

Table 7
Vegetation and Sequestration
Magee Preserve Development
Danville, California

Vegetation Type	Acres Prior to Project	Acres Post Project	GHG Released (one time loss to atmosphere, MT)
Grassland ¹	410.1	358.59	222

Sequestration Type	Amount Removed	Amount Added	GHG Sequestered (MT / 20 years)
Miscellaneous Trees ²	49	500	-319

Period Emissions Amortized Over (yr)	30
Net GHG Reduction (MT / yr) ³ :	-3.2

Notes:

- ¹. According to the Biological Evaluation Letter, the Magee Preserve property is 410.1 acres. 51.51 acres will be impacted by the Project. To be conservative, the entire project acreage was assumed to be removed.
- ². According to the Arborist Report and the Landscape Plan, 49 trees will be removed and 500+ will be added.
- ³. The CO₂e total from the CalEEMod output is sequestered over the 20 year active growth period of new trees, as recommended by the Intergovernmental Panel on Climate Change (IPCC). The one-time loss in total land use sequestration capacity is subtracted from this total. The negative value indicates CO₂e emissions sequestration, as opposed to emissions. Effect was calculated as follows:

$$[\Sigma(\text{GHG Released}) - \Sigma(\text{GHG Sequestered})] / 30 \text{ years}$$

References:

Live Oak Associates, Inc. Update to the biological evaluation completed for Magee Ranch in Danville, California (PN 2098-02). July 27, 2017.

HortScience, Inc. Tree Assessment, Magee Ranch. June 12, 2017.

Ripley Design Group. Conceptual Landscape Plan. Magee Ranches, Danville, California, Summerhill Homes. June 5, 2013.

Table 8
GHG Emissions Reductions from Electric Vehicle Charging
Magee Preserve Development
Danville, California

Estimating GHG Emissions Reduction from Replacement of Gasoline Vehicle with Electric Vehicle		
PG&E Electricity Emission Factor ¹	0.13	(MT CO ₂ e/MWh)
Fuel Economy of Electric Vehicle ²	0.25	(KWh/mile)
Electric Vehicle GHG Emissions	32.9	(g/mile)
GHG Emissions for the Residential Miles Traveled as Estimated by CalEEMod® ³	346.1	(g/mile)
GHG Emissions Reduction from Additional Electric Vehicles, per mile	313.2	(g/mile)
Estimating Project Residential-Related Traffic GHG Emissions		
Residential Average Yearly Traffic ⁴	1,938,592	(miles/year)
Percent of Residential Miles Driven in Electric Vehicles due to This Measure ⁵	25%	
Residential VMT that is Displaced by EVs due to This Measure	484,648	(miles/year)
Estimated Benefit from Residential EV Chargers and Vehicle Subsidy		
GHG Emissions Reduction from Residential Electric Vehicles	152	(MT CO ₂ e/year)
Reduction per DU	2.2	(MT CO ₂ e/year)

Notes:

- ¹ CO₂ intensity factor is the projected intensity for PG&E in 2020. This analysis only uses CO₂ and CH₄ emissions, and N₂O is not included. For purposes of this analysis, zero emission vehicles are assumed to be electric vehicles.
- ² US Department of Energy, 2013. Benefits and Considerations of Electricity as a Vehicle Fuel. Available at: http://www.afdc.energy.gov/fuels/electricity_benefits.html. Accessed: July 2017.
- ³ The emissions factor (346.1 g/mile) is consistent with the CalEEMod® input.
- ⁴ Annual vehicle miles traveled is from CalEEMod® using the trip rates provided by the Project-specific Traffic Study.
- ⁵ Percent of residential miles driven in electric vehicles assumes that 50% of all single family households with a charging station will have an electric vehicle and those households will use that vehicle for 50% of the annual miles they drive. A variety of factors will contribute to high rates of electric vehicle penetration for the Project. First, there are already dozens of electric vehicle models available for purchase in California, and the costs of batteries continue to decrease. Second, there are numerous statewide and regional initiatives to help fund electric vehicle and infrastructure purchases, and many policy goals aim to increase the number of EVs because vehicle electrification is critical to achieving California's long-term greenhouse gas reduction goals. Third, reliable access to EV chargers is an important factor contributing to buying electric vehicles. Therefore, the Project's mitigation measure requiring that EV charging infrastructure be included in each single family home will encourage EV ownership and use. Given the market trends, policy goals, and infrastructure growth and incentives, this analysis estimates that half the residential units facilitated by the Project will have an EV by 2023. Further, even though many households with EVs also own a conventional gasoline or diesel car, they use the EV for a large percent of work commute, personal errands, and shopping, while the conventional vehicle is the primary vehicle for vacation travel. Therefore, the evidence indicates that households with an EV will have a very high usage rate for residential trips, even if the households also own a conventional vehicle.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MOdel
 CH₄ - methane
 CO₂ - carbon dioxide
 CO₂e - carbon dioxide equivalents
 DU - dwelling unit
 EV - electric vehicle
 g - gram
 GHG - greenhouse gases

kWh - kilowatt-hour
 mi - mile
 MT - metric tonnes
 MWh - megawatt-hour
 N₂O - nitrous oxide
 PG&E - Pacific Gas & Electric Company
 VMT - vehicle miles traveled

Table 9
Projected 2030 GHG Significance Threshold
Magee Preserve Development
Danville, California

BAAQMD 2020 Service Population Calculation (Based on the 2008 Scoping Plan)¹	
Land Use Sectors Greenhouse Gas Emissions Target (metric tons CO ₂ e/yr)	295,530,000
Population	44,135,923
Employment	20,194,661
California Service Population (Population + Employment)	64,330,584
AB 32 Goal GHG emissions (MT CO ₂ e/SP/yr) ²	4.6
2030 Service Population Estimation Calculation (Based on the 2014 Updated Scoping Plan)³	
Original 2020 Limit (MMT CO ₂ e) (i.e., 1990 level approved in 2007) ⁴	427
BAAQMD-used California Land Use Sector Emissions Target Based on Original 2020 Limit (MMT CO ₂ e/yr) ⁵	296
BAAQMD-used Land Use Sector 2020 Emission Target/2020 Emission Limit	69.2%
Updated 2020 Limit (i.e., 1990 level approved in 2014 and most correct) (MMT CO ₂ e) ⁴	431
California Land Use Sector Emissions Target Based on <u>Updated</u> 2020 Limit (MMT CO ₂ e/yr)	298
Percentage 2030 GHG Target Emissions Relative to 1990 level ⁵	60.0%
Estimate 10-year employment growth rate (2014 -2024) ⁶	15.1%
Estimated 2030 Data	
CY 2030	
Land Use Sectors Greenhouse Gas Emissions Target ^{1,7} (MT CO ₂ e/yr)	178,979,059
2030 Population ⁸	44,019,846
Employment ⁹	23,241,833
California Service Population (Population + Employment)	67,261,679
2030 Goal GHG emissions (MT CO ₂ e/SP/yr)	2.7

Notes:

- ¹ Table 6 of May 2017 BAAQMD California Environmental Quality Act Guidelines. Bay Area Air Quality Management District (BAAQMD). 2017.
- ² This target is based on the IPCC Second Assessment Report Global Warming Potentials (GWP). If updated to the Fourth Assessment Report GWPs, the emissions would increase slightly, but would remain at 4.6 MT CO₂e/SP/yr, due to negligible impacts of the GWPs.
- ³ Using AR4 Global Warming Potentials for the 1990 Inventory
- ⁴ California 1990 Greenhouse Gas Emissions Level and 2020 Limit. Available at: <http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm>. Accessed: September 2017.
- ⁵ Executive Order B-30-15. Available at: <https://www.gov.ca.gov/news.php?id=18938>. Accessed: September 2017.
- ⁶ California Industry Employment Projections Between 2014-2024. Employment Development Department (EDD), State of California, August 2016. Available at: [http://www.labormarketinfo.edd.ca.gov/file/occproj/cal\\$occnarr-2014-2024.pdf](http://www.labormarketinfo.edd.ca.gov/file/occproj/cal$occnarr-2014-2024.pdf). Accessed: September 2017.
- ⁷ Emissions adjusted by AR4 GWP and reduction target for 2030.
- ⁸ Report P-1 (County): State and County Total Population Projections, 2010-2060 (5-year increments). California Department of Finance. Available at: <http://www.dof.ca.gov/Forecasting/Demographics/projections/>
- ⁹ Assume the 10-year employment growth rate between 2020 and 2030 is the same as that of the 2014-2024.

Abbreviations:

AB - Assembly Bill	IPCC - Intergovernmental Panel on Climate Change
AR4 - IPCC Fourth Assessment Report	MT - metric tonnes
BAAQMD - Bay Area Air Quality Management District	MMT - million metric tonnes
CO ₂ e - carbon dioxide equivalents	SP - service population
GHG - greenhouse gases	yr - year
GWP - global warming potential	

Table 10
Operational Project GHG Emissions
Magee Preserve Development
Danville, California

Total Project 2023 GHG Emissions¹

Category	CO ₂ e
	(MT/yr)
Area	12
Energy Use ²	134
Mobile	532
Waste Disposed	46
Water Use	13
Sub-Total	736
Vegetation/Sequestration ³	-3.2
Electric Vehicle Charging ⁴	-152
Total	581
2020 GHG Target	1100
Meets Target?	Yes

GHG Emissions per Service Population

Project Service Population	216
Emissions per Service Population (MT/SP/yr)	2.7
BAAQMD 2020 Service Population Target (MT/SP/yr)	4.6
Meets 2020 Target?	Yes
Estimated 2030 Service Population Target (MT/SP/yr)	2.7
Meets Estimated 2030 Target? ¹	Yes

Notes:

- ¹. Project operational GHG emissions were estimated for the Project build-out year of 2023, and were compared to the 2020 GHG threshold, as well as the 2030 GHG threshold. GHG emissions from the Project are expected to be lower in 2030 than in 2023, based on increased fuel efficiency standards and lower emissions from electricity due to the Renewable Portfolio Standard (RPS).
- ². The homes will be zero net electricity and are assumed to generate as much zero carbon electricity as they consume over the course of the year, thus generating zero net electricity emissions. All energy use emissions are due to natural gas consumption.
- ³. Vegetation amortized over 30 years.
- ⁴. With the installation of electric vehicle charging stations in all single-family homes, 50% of single-family homes are assumed to have an electric vehicle. 50% of the annual miles driven by these households are assumed to be displaced with miles driven by electric vehicles.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CO₂e - CO₂ equivalent
GHG - Greenhouse Gas
MT - metric ton

SP - service population
yr - year
ZNE - zero net energy

Table 11
Summary of Modelled TAC Emissions
Magee Preserve Development
Danville, California

Phase	Year	Source	TAC Emissions ¹					
			Unmitigated			Mitigated		
			1-Hour ¹	Annual ²		1-Hour ¹	Annual ²	
			TOG ³	DPM	PM _{2.5}	TOG ³	DPM	PM _{2.5}
			g/s			g/s		
Site Preparation	2019	On-Site	1.68E-02	4.35E-03	4.01E-03	7.59E-03	4.13E-04	4.13E-04
		Off-Site	4.23E-04	8.34E-06	8.05E-06	4.23E-04	8.34E-06	8.05E-06
Model Homes	2019	On-Site	1.57E-02	1.11E-03	1.05E-03	7.20E-03	1.17E-04	1.17E-04
		Off-Site	1.31E-04	1.15E-06	1.15E-06	1.31E-04	1.15E-06	1.15E-06
	2020	On-Site	1.29E-02	2.00E-03	1.88E-03	6.55E-03	2.43E-04	2.43E-04
		Off-Site	1.07E-04	1.44E-06	1.15E-06	1.07E-04	1.44E-06	1.15E-06
Home Production	2019	On-Site	1.57E-02	1.11E-03	1.05E-03	7.20E-03	1.17E-04	1.17E-04
		Off-Site	7.96E-04	6.90E-06	6.33E-06	7.96E-04	6.90E-06	6.33E-06
	2020	On-Site	1.41E-02	4.21E-03	3.96E-03	7.21E-03	5.12E-04	5.12E-04
		Off-Site	7.02E-04	2.01E-05	1.90E-05	7.02E-04	2.01E-05	1.90E-05
	2021	On-Site	1.27E-02	3.60E-03	3.38E-03	7.21E-03	5.09E-04	5.09E-04
		Off-Site	6.29E-04	1.04E-05	9.78E-06	6.29E-04	1.04E-05	9.78E-06
	2022	On-Site	8.92E-03	1.82E-03	1.71E-03	5.63E-03	3.03E-04	3.03E-04
		Off-Site	4.64E-04	6.04E-06	5.47E-06	4.64E-04	6.04E-06	5.47E-06

Notes:

- ¹ Hourly emissions averaged over number of construction days per year assuming 8 hours per day.
- ² Annual emissions averaged over 365 days per year assuming 24 hours per day. Modeling scaled to limit emissions to only occur between 7 AM and 5 PM.
- ³ TOG emissions converted from ROG emissions using EPA hydrocarbon conversion factors.

Abbreviations:

TAC - Toxic Air Contaminants
TOG - total organic gases
DPM - Diesel Particulate Matter
PM_{2.5} - particulate matter less than 2.5 microns

Sources:

U. S. Environmental Protection Agency (EPA). 2010. Conversion Factors for Hydrocarbon Emission Components. July.
Available at: <https://permanent.access.gpo.gov/lps71699/420p03002.pdf>

Table 12
Modelling Parameters
Magee Preserve Development
Danville, California

Source ¹	Section	Source Type	Source Dimension ^{2,3}	Number of Sources	Release Height ⁴	Initial Vertical Dimension ⁵	Initial Lateral Dimension ⁵
			m		m	m	m
Site Preparation	East	Adjacent Volume Sources Representing a Larger Source Area	20 x 20	400	5.00	1.16	9.30
	West		10 x 10	200			4.65
Model Homes	--		20 x 20	111			9.30
Home Production	East		20 x 20	289			9.30
	West		10 x 10	200			4.65
Haul Roads (all Phases)	Diablo Rd., Pt. 1		22 x 22	51	2.55	2.37	10.23
	Diablo Rd., Pt. 2	Adjacent Volume Sources Representing a Larger Line Source	13 x 13	161			6.05
	Diablo Rd., Pt. 3		13 x 13	89			6.05
	McCauley Rd.		16 x 16	15			7.44
	On-Site		14 x 14	69			6.51

Notes:

- ¹. All sources modeled for 10 hours per day from 7 AM to 5 PM.
- ². Eastern section of site covers less than 5 acres so was modeled with adjacent 10 m x10 m volume sources. Larger eastern portion was modeled using 20 m x 20 m adjacent volume sources
- ³. Haul road volume source dimensions assumed to be road width + 6 m, consistent with EPA guidance.
- ⁴. Area source release height assumed to be 5 m, consistent with SCAQMD guidance. Haul road release height assumed to be 2.55, consistent with EPA guidance.
- ⁵. Consistent with EPA guidance, initial vertical dimension was assumed to be release height divided by 4.3, and initial lateral dimension was assumed to be source dimension divided by 2.15.

Abbreviations:

m - meter

EPA - United States Environmental Protection Agency

SCAQMD - South Coast Air Quality management District

Source:

U. S. EPA. 2016. User's Guide for the AMS/EPA Regulatory Model (AERMOD). December. Available at: https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf

U.S. EPA. 2011. Haul Road Workgroup Recommendations. November. Available at: https://www3.epa.gov/scram001/reports/Haul_Road_Workgroup-Final_Report_Package-20120302.pdf

SCAQMD. 2008. Final Localized Significance Threshold Methodology. July. Available at: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2>

Table 13
Construction Exposure Parameters
Magee Preserve Development
Danville, California

Receptor Type	Construction Phase	Receptor Age Group	Exposure Parameters					
			Daily Breathing Rate (DBR) ¹ [L / kg-day]	Exposure Duration (ED) [years]	Fraction of Time at Home (FAH) ² [unitless]	Exposure Frequency (EF) ³ [days / year]	Averaging Time (AT) [days]	Intake Factor, Inhalation (IF _{inh}) [m ³ / kg-day]
Off-Site Child Resident	All Phases	3rd Trimester	361	0.25	1.0	350	25,550	0.012
		Age 0-<2 Years	1,090	2.0	1.0			0.299
		Age 2-<9 Years	631	1.5	1.0			0.039
On-Site Child Resident of Model Homes	Home Production after initial model homes are completed	3rd Trimester	361	0.25	1.0	350	25,550	0.012
		Age 0-<2 Years	1,090	1.9	1.0			0.290

Receptor Type	Period	Receptor Age Group	Age Sensitivity Factor ⁴
All Receptors	Construction	3rd Trimester	10
		Age 0-<2 Years	10
		Age 2-<9 Years	3

Table 13
Construction Exposure Parameters
Magee Preserve Development
Danville, California

Notes:

- ¹. Daily breathing rates reflect default breathing rates from OEHHA 2015 and BAAQMD 2016 as follows: 95th percentile 24-hour daily breathing rate for 3rd trimester and age 0-<2 years; 80th percentile for ages 2 years and older (per BAAQMD 2016 guidance).
- ². Fraction of time spent at home is conservatively assumed to be 1 (i.e. 24 hours/day) for age groups from the third trimester to less than 9 years old based on the recommendation from BAAQMD (BAAQMD 2016) and OEHHA (OEHHA 2015). The fraction of time at home (73%) for adults age 16-30 reflects default OEHHA guidance (OEHHA 2015) as recommended by BAAQMD (2016).
- ³. Exposure frequency reflects default residential exposure frequency from OEHHA 2015.
- ⁴. Based on OEHHA 2015. Age sensitivity factors are unitless.

Calculation:

$$IF_{inh} = DBR * FAH * EF * ED * CF / AT$$

$$CF = 0.001 \text{ (m}^3\text{/L)}$$

Abbreviations:

AT - averaging time

BAAQMD - Bay Area Air Quality Management District

DBR - daily breathing rate

ED - exposure duration

EF - exposure frequency

FAH - fraction of time at home

IF_{inh} - intake factor

kg - kilogram

L - liter

m^3 - cubic meter

OEHHA - Office of Environmental Health Hazard Assessment

References:

BAAQMD. 2016. Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines. January.

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Table 14
Speciation Profile
Magee Preserve Development
Danville, California

Source	Emission Type	Fraction	Chemical ¹
Diesel Offroad Equipment (Construction and Generators)	Exhaust PM	1	Diesel PM
	Exhaust TOG	0.0019	1,3-Butadiene
		0.0735	Acetaldehyde
		0.02	Benzene
		0.0031	Ethylbenzene
		0.1471	Formaldehyde
		0.0016	n-Hexane
		0.0003	Methanol
		0.0148	Methyl Ethyl Ketone
		0.0009	Naphthalene
		0.026	Propylene
		0.0006	Styrene
		0.0147	Toluene
		0.0061	m-Xylene
		0.0034	o-Xylene
		0.001	p-Xylene
Diesel Roadway Traffic	Exhaust PM	1	Diesel PM
	Exhaust TOG	0.15942	Acetaldehyde
		0.01045	Benzene
		0.08505	Formaldehyde
		0.02860	Methyl Ethyl Ketone
		0.01518	Toluene
		0.00317	o-Xylene
		0.00889	m- & p-Xylenes

Notes:

¹ Compounds presented in this table are only those air toxic contaminants with toxicity values from Cal/EPA (2015) evaluated in the health risk assessment. Speciation profiles presented in this table are from the following sources:

Diesel offroad exhaust, TOG: ARB 818 / EPA 3161

Diesel onroad exhaust, TOG: EPA 4674

Abbreviations:

ARB - Air Resources Board

BAAQMD - Bay Area Air Quality Management District

Cal/EPA - California Environmental Protection Agency

PM - particulate matter

TOG - total organic gas

USEPA - United States Environmental Protection Agency

References:

ARB. Speciation Profiles Used in ARB Modeling. Available online at: <http://www.arb.ca.gov/ei/speciate/speciate.htm#specprof>

BAAQMD. 2011. Recommended Methods for Screening and Modeling Local Risks and Hazards. May.

Cal/EPA. 2015. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. May 13.

USEPA. SPECIATE 4.3. Available online at: <http://cfpub.epa.gov/si/speciate/>

Table 15
Toxicity Values
Magee Preserve Development
Danville, California

Chemical ¹	Cancer Potency Factor (mg / kg-day) ⁻¹	Chronic REL (µg / m ³)	Acute REL (µg / m ³)
Diesel PM	1.1	5	-
Acetaldehyde	-	-	470
Benzene	-	-	27
1,3-Butadiene	-	-	660
Chlorine	-	-	210
Copper	-	-	100
Ethylbenzene	-	-	-
Formaldehyde	-	-	55
n-Hexane	-	-	-
Manganese	-	-	-
Methanol	-	-	28,000
Methyl Ethyl Ketone	-	-	13,000
Naphthalene	-	-	-
Propylene	-	-	-
Styrene	-	-	21,000
Toluene	-	-	37,000
Xylenes	-	-	22,000

Notes:

- ¹. Chemicals presented in this table reflect air toxic contaminants in the proposed fuel types that are expected from off-road equipment and on-road truck trips.

Abbreviations:

-- not available or not applicable
µg/m³ - micrograms per cubic meter
ARB - Air Resources Board
Cal/EPA - California Environmental Protection Agency
(mg/kg-day)⁻¹ - per milligram per kilogram-day
OEHHA - Office of Environmental Health Hazard Assessment
PM - particulate matter
REL - reference exposure level

Reference:

Cal/EPA. 2015. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. May 13.

Table 16
Lifetime Excess Cancer Risk at MEISRs
Magee Preserve Development
Danville, California

MEISR Location	Lifetime Excess Cancer Risk ¹	Chronic Hazard Index ²	Acute Hazard Index ³	Maximum Annual PM _{2.5} Concentration
	in a million	Unitless	Unitless	(µg/m ³)
Off-Site	3.4	0.0029	0.062	0.014
On-Site	2.5	0.0035	0.063	0.017
Threshold	10	1	1	0.3
Exceeds Threshold?	No	No	No	No

MEISR Locations:

	Off-Site		On-Site	
	UTMx	UTMy	UTMx	UTMy
Cancer Risk	592,140	4,187,340	592,280	4,187,260
Chronic HI	592,520	4,187,260	592,440	4,187,240
Acute HI	592,620	4,187,200	592,280	4,187,260
PM _{2.5}	592,520	4,187,260	592,440	4,187,240

Notes:

1. Excess lifetime cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a unitless probability. The cancer risk attributed to the emissions associated with the Project was calculated based on the modeled annual average DPM concentration, the intake factor for a resident child, the Cancer Potency Factors (CPF) for DPM, and the Age Sensitivity Factors (ASF).

Calculation: $Risk_{inh} = \sum Risk_{inh,i} = \sum C_i \times CF \times IF_{inh} \times CPF_i \times ASF$

Where:

$Risk_{inh}$: Cancer Risk; the incremental probability of an individual developing cancer as a result of inhalation exposure to a potential carcinogen

$Risk_{inh,i}$: Cancer Risk for Chemical i

C_i : Modeled Annual Average Concentration in air for Chemical i (µg/m³)

CF: Conversion Factor (mg/µg)

IF_{inh} : Intake Factor for Inhalation (m³/kg-day)

CPF_i : Cancer Potency Factor for Chemical i (mg chemical/kg body weight-day)⁻¹

ASF: Age Sensitivity Factor

2. The potential for exposure to result in adverse chronic noncancer effects is evaluated by comparing the estimated annual average air concentration to the noncancer chronic Reference Exposure Level (REL) for each chemical. When calculated for a single chemical, the comparison yields a ratio termed a chronic hazard quotient (HQ). To evaluate the potential for adverse chronic noncancer health effects from simultaneous exposure to multiple chemicals, the chronic hazard quotients for all chemicals are summed, yielding a hazard index (HI).

Calculation: $Chronic\ HI = \sum Chronic\ HQ_i = \sum [C_i / cREL_i]$

Where:

HI: Hazard Index

HQ_i : Hazard Quotient for Chemical i

C_i : Annual Average Air Concentration for Chemical i (µg/m³)

$cREL_i$: Noncancer Chronic Reference Exposure Level for Chemical i (µg/m³)

Table 16
Lifetime Excess Cancer Risk at MEISRs
Magee Preserve Development
Danville, California

Notes continued:

- ³. The potential for exposure to result in adverse acute noncancer effects is evaluated by comparing the estimated maximum 1-hour air concentration to the noncancer acute REL for each chemical. When calculated for a single chemical, the comparison yields a ratio termed a acute hazard quotient. To evaluate the potential for adverse acute noncancer health effects from simultaneous exposure to multiple chemicals, the acute hazard quotients for all chemicals are summed, yielding a acute hazard index (HI).

Calculation: Acute HI = $\sum \text{Acute HQ}_i = \sum [C_i / \text{aREL}_i]$

Where:

HI: Hazard Index

HQ_i: Hazard Quotient for Chemical i

C_i: Maximum 1-hour Air Concentration for Chemical i (µg/m³)

aREL_i: Noncancer Acute Reference Exposure Level for Chemical i (µg/m³)

Abbreviations:

MEISR

ASF - age sensitivity factor

CPF - cancer potency factor

HI - hazard index

HQ - hazard quotient

aREL - acute reference exposure level

cREL - chronic reference exposure level

REL - Reference Exposure Level

MEISR - maximally exposed individual sensitive receptor

OEHHA - Office of Environmental Health Hazard Assessment

PM - particulate matter

DPM - diesel particulate matter

µg - microgram

m³ - cubic meter

Reference:

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

FIGURES



Project Area
Magee Preserve Development
Davidon Homes
Danville, California

FIGURE
1
PROJECT

Legend

- Site Preparation
- McCauley Rd.
- On-Site Rd.
- Diablo Rd.



0 0.125 0.25 0.5 0.75 Miles

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Site Preparation Emissions Sources Magee Preserve Development

Davidon Homes
Danville, California

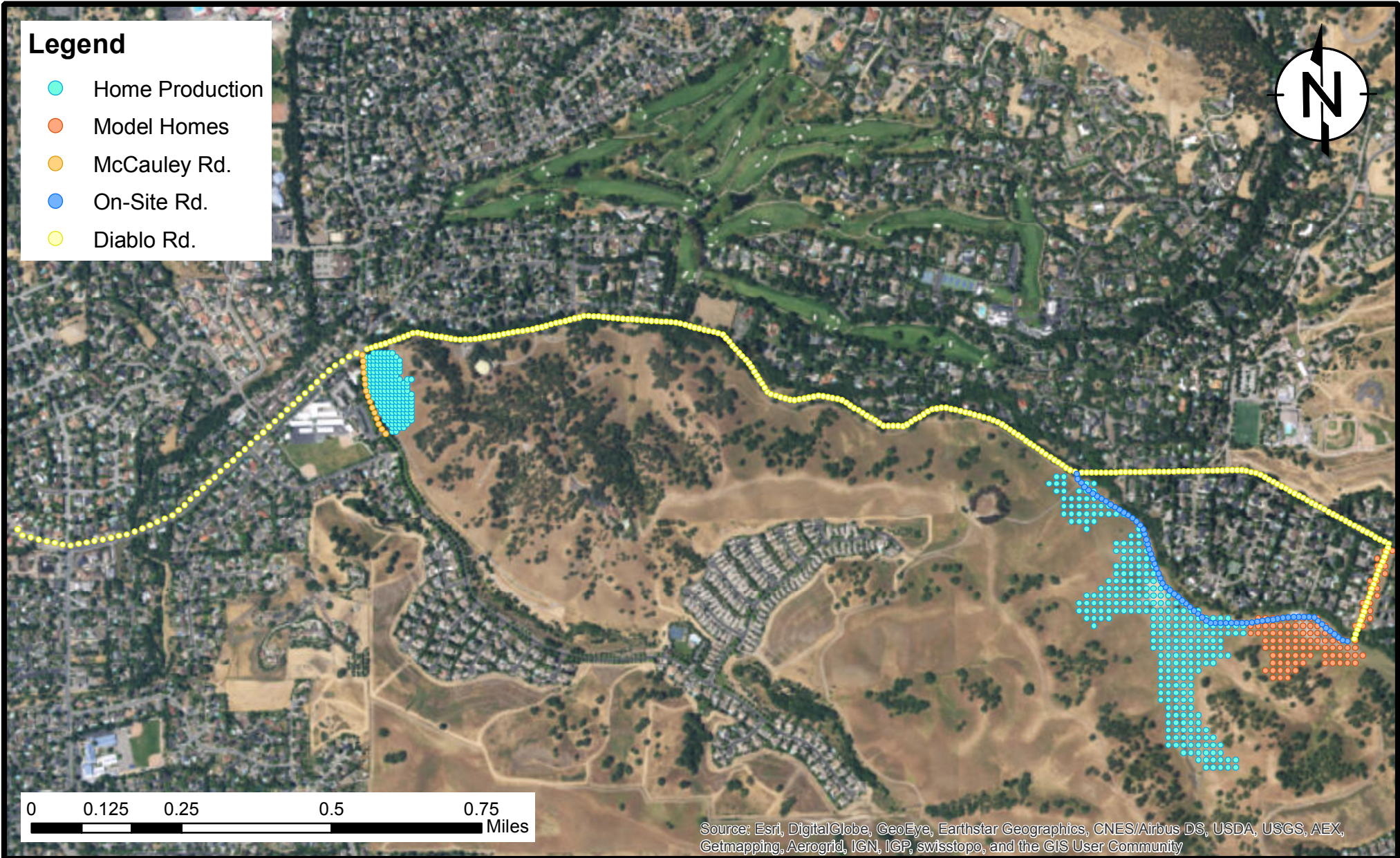
FIGURE
2

PROJECT



Legend

- Home Production
- Model Homes
- McCauley Rd.
- On-Site Rd.
- Diablo Rd.



Home Production and Model Home Construction Emissions Sources Magee Preserve Development

Davidon Homes
Danville, California

FIGURE
3

PROJECT

Legend

- On-Site Residential
- Off-site Residential
- Off-site Non-residential

1000 m



0 0.125 0.25 0.5 0.75 1 Miles

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Modelled Receptor Grid Magee Preserve Development

Davidon Homes
Danville, California

FIGURE
4

PROJECT



**ATTACHMENT A
CALEEMOD® OUTPUT FILES
CONSTRUCTION AND OPERATIONAL**

Davidon Homes, Magee Preserve - Home Production - Contra Costa County, Annual

Davidon Homes, Magee Preserve - Home Production
Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	64.00	Dwelling Unit	16.95	223,982.00	161

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Davidon Homes, Magee Preserve - Home Production - Contra Costa County, Annual

Project Characteristics - Operational year is 2023

Land Use - Lot acreage and square footage based on average lot size and total DU square footage. Population estimate provided by project sponsor.

Construction Phase - Construction schedule provided by project sponsor and adapted by Ramboll Environ.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Non-default used to negate bug of multiple Architectural Coating trip rows

Architectural Coating -

Construction Off-road Equipment Mitigation - Assume all equipment certified to Tier 2 with Level 3 DPF for mitigated scenario.

On-road Fugitive Dust -

Vehicle Trips -

Vehicle Emission Factors -

Fleet Mix -

Road Dust -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	49.00
tblConstructionPhase	NumDays	300.00	734.00
tblLandUse	BuildingSpaceSquareFeet	115,200.00	223,982.00
tblLandUse	LandUseSquareFeet	115,200.00	223,982.00
tblLandUse	LotAcreage	20.78	16.95
tblLandUse	Population	183.00	161.00
tblProjectCharacteristics	OperationalYear	2018	2023
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	5.00	0.00

2.0 Emissions Summary

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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					
2019	0.0744	0.6610	0.5413	9.2000e-004	6.8500e-003	0.0389	0.0458	1.8500e-003	0.0366	0.0385	0.0000	80.9995	80.9995	0.0176	0.0000	81.4398
2020	0.2915	2.6259	2.3099	4.0100e-003	0.0299	0.1470	0.1770	8.1000e-003	0.1383	0.1464	0.0000	348.2934	348.2934	0.0757	0.0000	350.1862
2021	0.2604	2.3758	2.2558	3.9800e-003	0.0298	0.1255	0.1553	8.0700e-003	0.1180	0.1260	0.0000	346.0448	346.0448	0.0745	0.0000	347.9069
2022	1.7175	1.2687	1.3320	2.3800e-003	0.0191	0.0633	0.0823	5.1300e-003	0.0597	0.0648	0.0000	206.7535	206.7535	0.0432	0.0000	207.8329
Maximum	1.7175	2.6259	2.3099	4.0100e-003	0.0299	0.1470	0.1770	8.1000e-003	0.1383	0.1464	0.0000	348.2934	348.2934	0.0757	0.0000	350.1862

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2.1 Overall Construction**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					
2019	0.0360	0.7352	0.5626	9.2000e-004	6.8500e-003	4.3000e-003	0.0112	1.8500e-003	4.2900e-003	6.1400e-003	0.0000	80.9994	80.9994	0.0176	0.0000	81.4397
2020	0.1554	3.1981	2.4442	4.0100e-003	0.0299	0.0185	0.0484	8.1000e-003	0.0184	0.0265	0.0000	348.2931	348.2931	0.0757	0.0000	350.1858
2021	0.1533	3.1748	2.4253	3.9800e-003	0.0298	0.0181	0.0479	8.0700e-003	0.0180	0.0261	0.0000	346.0445	346.0445	0.0745	0.0000	347.9065
2022	1.6681	1.8912	1.4465	2.3800e-003	0.0191	0.0108	0.0298	5.1300e-003	0.0108	0.0159	0.0000	206.7533	206.7533	0.0432	0.0000	207.8327
Maximum	1.6681	3.1981	2.4442	4.0100e-003	0.0299	0.0185	0.0484	8.1000e-003	0.0184	0.0265	0.0000	348.2931	348.2931	0.0757	0.0000	350.1858

	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
Percent Reduction	14.12	-29.84	-6.83	0.00	0.00	86.23	70.19	0.00	85.39	80.13	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	10-9-2019	1-8-2020	0.7995	0.8449
2	1-9-2020	4-8-2020	0.7241	0.8323
3	4-9-2020	7-8-2020	0.7235	0.8317
4	7-9-2020	10-8-2020	0.7315	0.8409
5	10-9-2020	1-8-2021	0.7263	0.8413
6	1-9-2021	4-8-2021	0.6496	0.8201
7	4-9-2021	7-8-2021	0.6563	0.8286
8	7-9-2021	10-8-2021	0.6635	0.8378

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9	10-9-2021	1-8-2022	0.6582	0.8382
10	1-9-2022	4-8-2022	0.5833	0.8184
11	4-9-2022	7-8-2022	0.5893	0.8270
12	7-9-2022	9-30-2022	1.5695	1.6505
		Highest	1.5695	1.6505

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	1.4240	0.0138	1.0238	1.1600e-003		0.0817	0.0817		0.0817	0.0817	8.1351	2.7737	10.9088	0.0161	4.7000e-004	11.4503
Energy	0.0124	0.1060	0.0451	6.8000e-004		8.5700e-003	8.5700e-003		8.5700e-003	8.5700e-003	0.0000	283.9890	283.9890	9.6400e-003	3.7600e-003	285.3503
Mobile	0.1374	0.5661	1.5647	5.7000e-003	0.5214	4.4300e-003	0.5259	0.1399	4.1300e-003	0.1440	0.0000	522.0620	522.0620	0.0176	0.0000	522.5012
Waste						0.0000	0.0000		0.0000	0.0000	13.7263	0.0000	13.7263	0.8112	0.0000	34.0062
Water						0.0000	0.0000		0.0000	0.0000	1.3229	9.2405	10.5634	0.1363	3.2900e-003	14.9526
Total	1.5737	0.6858	2.6336	7.5400e-003	0.5214	0.0947	0.6162	0.1399	0.0944	0.2343	23.1843	818.0651	841.2494	0.9908	7.5200e-003	868.2605

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2.2 Overall Operational**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	1.4240	0.0138	1.0238	1.1600e-003		0.0817	0.0817		0.0817	0.0817	8.1351	2.7737	10.9088	0.0161	4.7000e-004	11.4503
Energy	0.0124	0.1060	0.0451	6.8000e-004		8.5700e-003	8.5700e-003		8.5700e-003	8.5700e-003	0.0000	283.9890	283.9890	9.6400e-003	3.7600e-003	285.3503
Mobile	0.1374	0.5661	1.5647	5.7000e-003	0.5214	4.4300e-003	0.5259	0.1399	4.1300e-003	0.1440	0.0000	522.0620	522.0620	0.0176	0.0000	522.5012
Waste						0.0000	0.0000		0.0000	0.0000	13.7263	0.0000	13.7263	0.8112	0.0000	34.0062
Water						0.0000	0.0000		0.0000	0.0000	1.3229	9.2405	10.5634	0.1363	3.2900e-003	14.9526
Total	1.5737	0.6858	2.6336	7.5400e-003	0.5214	0.0947	0.6162	0.1399	0.0944	0.2343	23.1843	818.0651	841.2494	0.9908	7.5200e-003	868.2605

	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
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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	10/9/2019	8/1/2022	5	734	
2	Architectural Coating	Architectural Coating	8/2/2022	10/7/2022	5	49	

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Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 453,564; Residential Outdoor: 151,188; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
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
Building Construction	9	23.00	7.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Clean Paved Roads

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3.2 Building Construction - 2019**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	0.0708	0.6324	0.5149	8.1000e-004		0.0387	0.0387		0.0364	0.0364	0.0000	70.5313	70.5313	0.0172	0.0000	70.9608
Total	0.0708	0.6324	0.5149	8.1000e-004		0.0387	0.0387		0.0364	0.0364	0.0000	70.5313	70.5313	0.0172	0.0000	70.9608

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	1.0400e-003	0.0267	6.9600e-003	6.0000e-005	1.3800e-003	2.0000e-004	1.5800e-003	4.0000e-004	1.9000e-004	5.9000e-004	0.0000	5.5096	5.5096	2.9000e-004	0.0000	5.5169
Worker	2.5400e-003	1.9000e-003	0.0194	5.0000e-005	5.4700e-003	4.0000e-005	5.5100e-003	1.4600e-003	3.0000e-005	1.4900e-003	0.0000	4.9587	4.9587	1.4000e-004	0.0000	4.9620
Total	3.5800e-003	0.0286	0.0264	1.1000e-004	6.8500e-003	2.4000e-004	7.0900e-003	1.8600e-003	2.2000e-004	2.0800e-003	0.0000	10.4682	10.4682	4.3000e-004	0.0000	10.4789

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3.2 Building Construction - 2019**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	0.0324	0.7066	0.5362	8.1000e-004		4.0700e-003	4.0700e-003		4.0700e-003	4.0700e-003	0.0000	70.5312	70.5312	0.0172	0.0000	70.9607
Total	0.0324	0.7066	0.5362	8.1000e-004		4.0700e-003	4.0700e-003		4.0700e-003	4.0700e-003	0.0000	70.5312	70.5312	0.0172	0.0000	70.9607

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	1.0400e-003	0.0267	6.9600e-003	6.0000e-005	1.3800e-003	2.0000e-004	1.5800e-003	4.0000e-004	1.9000e-004	5.9000e-004	0.0000	5.5096	5.5096	2.9000e-004	0.0000	5.5169
Worker	2.5400e-003	1.9000e-003	0.0194	5.0000e-005	5.4700e-003	4.0000e-005	5.5100e-003	1.4600e-003	3.0000e-005	1.4900e-003	0.0000	4.9587	4.9587	1.4000e-004	0.0000	4.9620
Total	3.5800e-003	0.0286	0.0264	1.1000e-004	6.8500e-003	2.4000e-004	7.0900e-003	1.8600e-003	2.2000e-004	2.0800e-003	0.0000	10.4682	10.4682	4.3000e-004	0.0000	10.4789

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3.2 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	0.2777	2.5134	2.2072	3.5300e-003		0.1463	0.1463		0.1376	0.1376	0.0000	303.4091	303.4091	0.0740	0.0000	305.2596
Total	0.2777	2.5134	2.2072	3.5300e-003		0.1463	0.1463		0.1376	0.1376	0.0000	303.4091	303.4091	0.0740	0.0000	305.2596

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	3.6800e-003	0.1052	0.0270	2.5000e-004	6.0300e-003	5.4000e-004	6.5700e-003	1.7400e-003	5.1000e-004	2.2600e-003	0.0000	23.9202	23.9202	1.1700e-003	0.0000	23.9495
Worker	0.0101	7.3100e-003	0.0757	2.3000e-004	0.0239	1.6000e-004	0.0241	6.3600e-003	1.5000e-004	6.5000e-003	0.0000	20.9642	20.9642	5.1000e-004	0.0000	20.9771
Total	0.0138	0.1125	0.1027	4.8000e-004	0.0299	7.0000e-004	0.0306	8.1000e-003	6.6000e-004	8.7600e-003	0.0000	44.8844	44.8844	1.6800e-003	0.0000	44.9265

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3.2 Building Construction - 2020**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	0.1416	3.0856	2.3415	3.5300e-003		0.0178	0.0178		0.0178	0.0178	0.0000	303.4087	303.4087	0.0740	0.0000	305.2592
Total	0.1416	3.0856	2.3415	3.5300e-003		0.0178	0.0178		0.0178	0.0178	0.0000	303.4087	303.4087	0.0740	0.0000	305.2592

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	3.6800e-003	0.1052	0.0270	2.5000e-004	6.0300e-003	5.4000e-004	6.5700e-003	1.7400e-003	5.1000e-004	2.2600e-003	0.0000	23.9202	23.9202	1.1700e-003	0.0000	23.9495
Worker	0.0101	7.3100e-003	0.0757	2.3000e-004	0.0239	1.6000e-004	0.0241	6.3600e-003	1.5000e-004	6.5000e-003	0.0000	20.9642	20.9642	5.1000e-004	0.0000	20.9771
Total	0.0138	0.1125	0.1027	4.8000e-004	0.0299	7.0000e-004	0.0306	8.1000e-003	6.6000e-004	8.7600e-003	0.0000	44.8844	44.8844	1.6800e-003	0.0000	44.9265

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3.2 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	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2867	302.2867	0.0729	0.0000	304.1099
Total	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2867	302.2867	0.0729	0.0000	304.1099

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	2.9900e-003	0.0944	0.0240	2.5000e-004	6.0100e-003	2.1000e-004	6.2200e-003	1.7400e-003	2.0000e-004	1.9400e-003	0.0000	23.6144	23.6144	1.1000e-003	0.0000	23.6418
Worker	9.3000e-003	6.5000e-003	0.0687	2.2000e-004	0.0238	1.5000e-004	0.0240	6.3300e-003	1.4000e-004	6.4700e-003	0.0000	20.1438	20.1438	4.6000e-004	0.0000	20.1552
Total	0.0123	0.1009	0.0927	4.7000e-004	0.0298	3.6000e-004	0.0302	8.0700e-003	3.4000e-004	8.4100e-003	0.0000	43.7582	43.7582	1.5600e-003	0.0000	43.7970

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3.2 Building Construction - 2021**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	0.1411	3.0739	2.3325	3.5100e-003		0.0177	0.0177		0.0177	0.0177	0.0000	302.2863	302.2863	0.0729	0.0000	304.1095
Total	0.1411	3.0739	2.3325	3.5100e-003		0.0177	0.0177		0.0177	0.0177	0.0000	302.2863	302.2863	0.0729	0.0000	304.1095

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	2.9900e-003	0.0944	0.0240	2.5000e-004	6.0100e-003	2.1000e-004	6.2200e-003	1.7400e-003	2.0000e-004	1.9400e-003	0.0000	23.6144	23.6144	1.1000e-003	0.0000	23.6418
Worker	9.3000e-003	6.5000e-003	0.0687	2.2000e-004	0.0238	1.5000e-004	0.0240	6.3300e-003	1.4000e-004	6.4700e-003	0.0000	20.1438	20.1438	4.6000e-004	0.0000	20.1552
Total	0.0123	0.1009	0.0927	4.7000e-004	0.0298	3.6000e-004	0.0302	8.0700e-003	3.4000e-004	8.4100e-003	0.0000	43.7582	43.7582	1.5600e-003	0.0000	43.7970

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3.2 Building Construction - 2022**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	0.1288	1.1790	1.2354	2.0300e-003		0.0611	0.0611		0.0575	0.0575	0.0000	174.9526	174.9526	0.0419	0.0000	176.0004
Total	0.1288	1.1790	1.2354	2.0300e-003		0.0611	0.0611		0.0575	0.0575	0.0000	174.9526	174.9526	0.0419	0.0000	176.0004

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	1.6100e-003	0.0516	0.0130	1.4000e-004	3.4800e-003	1.1000e-004	3.5800e-003	1.0000e-003	1.0000e-004	1.1100e-003	0.0000	13.5325	13.5325	6.0000e-004	0.0000	13.5476
Worker	5.0000e-003	3.3700e-003	0.0365	1.2000e-004	0.0138	9.0000e-005	0.0139	3.6600e-003	8.0000e-005	3.7400e-003	0.0000	11.2214	11.2214	2.4000e-004	0.0000	11.2273
Total	6.6100e-003	0.0550	0.0495	2.6000e-004	0.0173	2.0000e-004	0.0174	4.6600e-003	1.8000e-004	4.8500e-003	0.0000	24.7539	24.7539	8.4000e-004	0.0000	24.7749

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3.2 Building Construction - 2022**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	0.0816	1.7784	1.3495	2.0300e-003		0.0102	0.0102		0.0102	0.0102	0.0000	174.9524	174.9524	0.0419	0.0000	176.0002
Total	0.0816	1.7784	1.3495	2.0300e-003		0.0102	0.0102		0.0102	0.0102	0.0000	174.9524	174.9524	0.0419	0.0000	176.0002

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	1.6100e-003	0.0516	0.0130	1.4000e-004	3.4800e-003	1.1000e-004	3.5800e-003	1.0000e-003	1.0000e-004	1.1100e-003	0.0000	13.5325	13.5325	6.0000e-004	0.0000	13.5476
Worker	5.0000e-003	3.3700e-003	0.0365	1.2000e-004	0.0138	9.0000e-005	0.0139	3.6600e-003	8.0000e-005	3.7400e-003	0.0000	11.2214	11.2214	2.4000e-004	0.0000	11.2273
Total	6.6100e-003	0.0550	0.0495	2.6000e-004	0.0173	2.0000e-004	0.0174	4.6600e-003	1.8000e-004	4.8500e-003	0.0000	24.7539	24.7539	8.4000e-004	0.0000	24.7749

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3.3 Architectural Coating - 2022**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	1.5767					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0100e-003	0.0345	0.0444	7.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	6.2555	6.2555	4.1000e-004	0.0000	6.2657
Total	1.5817	0.0345	0.0444	7.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	6.2555	6.2555	4.1000e-004	0.0000	6.2657

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	3.5000e-004	2.4000e-004	2.5800e-003	1.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	0.7916	0.7916	2.0000e-005	0.0000	0.7920
Total	3.5000e-004	2.4000e-004	2.5800e-003	1.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	0.7916	0.7916	2.0000e-005	0.0000	0.7920

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3.3 Architectural Coating - 2022**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	1.5767					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7900e-003	0.0576	0.0449	7.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	6.2555	6.2555	4.1000e-004	0.0000	6.2657
Total	1.5795	0.0576	0.0449	7.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	6.2555	6.2555	4.1000e-004	0.0000	6.2657

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	3.5000e-004	2.4000e-004	2.5800e-003	1.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	0.7916	0.7916	2.0000e-005	0.0000	0.7920
Total	3.5000e-004	2.4000e-004	2.5800e-003	1.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	0.7916	0.7916	2.0000e-005	0.0000	0.7920

4.0 Operational Detail - Mobile

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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	0.1374	0.5661	1.5647	5.7000e-003	0.5214	4.4300e-003	0.5259	0.1399	4.1300e-003	0.1440	0.0000	522.0620	522.0620	0.0176	0.0000	522.5012
Unmitigated	0.1374	0.5661	1.5647	5.7000e-003	0.5214	4.4300e-003	0.5259	0.1399	4.1300e-003	0.1440	0.0000	522.0620	522.0620	0.0176	0.0000	522.5012

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	609.28	634.24	551.68	1,396,428	1,396,428
Total	609.28	634.24	551.68	1,396,428	1,396,428

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.590657	0.037535	0.185105	0.118290	0.015611	0.005013	0.010768	0.024764	0.001635	0.001742	0.005351	0.002726	0.000802

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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	161.2007	161.2007	7.2900e-003	1.5100e-003	161.8323
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	161.2007	161.2007	7.2900e-003	1.5100e-003	161.8323
NaturalGas Mitigated	0.0124	0.1060	0.0451	6.8000e-004		8.5700e-003	8.5700e-003		8.5700e-003	8.5700e-003	0.0000	122.7883	122.7883	2.3500e-003	2.2500e-003	123.5179
NaturalGas Unmitigated	0.0124	0.1060	0.0451	6.8000e-004		8.5700e-003	8.5700e-003		8.5700e-003	8.5700e-003	0.0000	122.7883	122.7883	2.3500e-003	2.2500e-003	123.5179

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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					
Single Family Housing	2.30097e+006	0.0124	0.1060	0.0451	6.8000e-004		8.5700e-003	8.5700e-003		8.5700e-003	8.5700e-003	0.0000	122.7883	122.7883	2.3500e-003	2.2500e-003	123.5179
Total		0.0124	0.1060	0.0451	6.8000e-004		8.5700e-003	8.5700e-003		8.5700e-003	8.5700e-003	0.0000	122.7883	122.7883	2.3500e-003	2.2500e-003	123.5179

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					
Single Family Housing	2.30097e+006	0.0124	0.1060	0.0451	6.8000e-004		8.5700e-003	8.5700e-003		8.5700e-003	8.5700e-003	0.0000	122.7883	122.7883	2.3500e-003	2.2500e-003	123.5179
Total		0.0124	0.1060	0.0451	6.8000e-004		8.5700e-003	8.5700e-003		8.5700e-003	8.5700e-003	0.0000	122.7883	122.7883	2.3500e-003	2.2500e-003	123.5179

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	554123	161.2007	7.2900e-003	1.5100e-003	161.8323
Total		161.2007	7.2900e-003	1.5100e-003	161.8323

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	554123	161.2007	7.2900e-003	1.5100e-003	161.8323
Total		161.2007	7.2900e-003	1.5100e-003	161.8323

6.0 Area Detail**6.1 Mitigation Measures Area**

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	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	1.4240	0.0138	1.0238	1.1600e-003		0.0817	0.0817		0.0817	0.0817	8.1351	2.7737	10.9088	0.0161	4.7000e-004	11.4503
Unmitigated	1.4240	0.0138	1.0238	1.1600e-003		0.0817	0.0817		0.0817	0.0817	8.1351	2.7737	10.9088	0.0161	4.7000e-004	11.4503

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	0.1577					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3772	8.2700e-003	0.5485	1.1300e-003		0.0791	0.0791		0.0791	0.0791	8.1351	1.9974	10.1325	0.0154	4.7000e-004	10.6554
Landscaping	0.0143	5.4800e-003	0.4753	3.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	0.7762	0.7762	7.5000e-004	0.0000	0.7949
Total	1.4240	0.0138	1.0238	1.1600e-003		0.0817	0.0817		0.0817	0.0817	8.1351	2.7737	10.9088	0.0161	4.7000e-004	11.4503

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6.2 Area by SubCategory**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	0.1577					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3772	8.2700e-003	0.5485	1.1300e-003		0.0791	0.0791		0.0791	0.0791	8.1351	1.9974	10.1325	0.0154	4.7000e-004	10.6554
Landscaping	0.0143	5.4800e-003	0.4753	3.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	0.7762	0.7762	7.5000e-004	0.0000	0.7949
Total	1.4240	0.0138	1.0238	1.1600e-003		0.0817	0.0817		0.0817	0.0817	8.1351	2.7737	10.9088	0.0161	4.7000e-004	11.4503

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.5634	0.1363	3.2900e-003	14.9526
Unmitigated	10.5634	0.1363	3.2900e-003	14.9526

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	4.16986 / 2.62882	10.5634	0.1363	3.2900e-003	14.9526
Total		10.5634	0.1363	3.2900e-003	14.9526

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	4.16986 / 2.62882	10.5634	0.1363	3.2900e-003	14.9526
Total		10.5634	0.1363	3.2900e-003	14.9526

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	13.7263	0.8112	0.0000	34.0062
Unmitigated	13.7263	0.8112	0.0000	34.0062

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8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	67.62	13.7263	0.8112	0.0000	34.0062
Total		13.7263	0.8112	0.0000	34.0062

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	67.62	13.7263	0.8112	0.0000	34.0062
Total		13.7263	0.8112	0.0000	34.0062

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	12.00	Dwelling Unit	3.22	42,479.00	30

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year set to 2021 and rural land use chosen.

Land Use - Lot acreage and square footage based on average lot size and total DU square footage. Population estimate provided by project sponsor.

Architectural Coating -

Vehicle Emission Factors -

Construction Off-road Equipment Mitigation - Assume all equipment in mitigated scenario is Tier 2 with Level 3 VDECS.

Construction Phase - Construction schedule provided by project sponsor and adapted by Ramboll Environ.

Trips and VMT -

On-road Fugitive Dust -

Vehicle Trips -

Road Dust -

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Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	150	0
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	18.00	14.00
tblConstructionPhase	NumDays	230.00	183.00
tblLandUse	BuildingSpaceSquareFeet	21,600.00	42,479.00
tblLandUse	LandUseSquareFeet	21,600.00	42,479.00
tblLandUse	LotAcreage	3.90	3.22
tblLandUse	Population	34.00	30.00

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tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

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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					
2019	0.0714	0.6365	0.5193	8.3000e-004	1.1500e-003	0.0387	0.0399	3.1000e-004	0.0364	0.0367	0.0000	72.1807	72.1807	0.0173	0.0000	72.6119
2020	0.4322	1.1994	1.0572	1.7100e-003	2.4100e-003	0.0695	0.0719	6.5000e-004	0.0654	0.0661	0.0000	147.5920	147.5920	0.0350	0.0000	148.4673
Maximum	0.4322	1.1994	1.0572	1.7100e-003	2.4100e-003	0.0695	0.0719	6.5000e-004	0.0654	0.0661	0.0000	147.5920	147.5920	0.0350	0.0000	148.4673

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					
2019	0.0330	0.7108	0.5406	8.3000e-004	1.1500e-003	4.1000e-003	5.2500e-003	3.1000e-004	4.1000e-003	4.4100e-003	0.0000	72.1806	72.1806	0.0173	0.0000	72.6118
2020	0.3674	1.4727	1.1202	1.7100e-003	2.4100e-003	8.4800e-003	0.0109	6.5000e-004	8.4800e-003	9.1300e-003	0.0000	147.5918	147.5918	0.0350	0.0000	148.4671
Maximum	0.3674	1.4727	1.1202	1.7100e-003	2.4100e-003	8.4800e-003	0.0109	6.5000e-004	8.4800e-003	9.1300e-003	0.0000	147.5918	147.5918	0.0350	0.0000	148.4671

	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
Percent Reduction	20.49	-18.93	-5.35	0.00	0.00	88.38	85.56	0.00	87.65	86.83	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-9-2019	1-8-2020	0.7693	0.8147
2	1-9-2020	4-8-2020	0.6971	0.8053
3	4-9-2020	7-8-2020	0.8462	0.9364
4	7-9-2020	9-30-2020	0.0159	0.0161
		Highest	0.8462	0.9364

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	0.2692	2.5800e-003	0.1921	2.2000e-004		0.0153	0.0153		0.0153	0.0153	1.5253	0.5201	2.0454	3.0200e-003	9.0000e-005	2.1470
Energy	2.3300e-003	0.0199	8.4600e-003	1.3000e-004		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	53.2479	53.2479	1.8100e-003	7.0000e-004	53.5032
Mobile	0.0304	0.1376	0.3445	1.1400e-003	0.0978	1.0000e-003	0.0988	0.0262	9.3000e-004	0.0272	0.0000	104.7085	104.7085	3.9000e-003	0.0000	104.8061
Waste						0.0000	0.0000		0.0000	0.0000	2.5577	0.0000	2.5577	0.1512	0.0000	6.3366
Water						0.0000	0.0000		0.0000	0.0000	0.2480	1.7326	1.9806	0.0256	6.2000e-004	2.8036
Total	0.3019	0.1600	0.5451	1.4900e-003	0.0978	0.0179	0.1157	0.0262	0.0179	0.0441	4.3311	160.2091	164.5402	0.1854	1.4100e-003	169.5964

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2.2 Overall Operational**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	0.2692	2.5800e-003	0.1921	2.2000e-004		0.0153	0.0153		0.0153	0.0153	1.5253	0.5201	2.0454	3.0200e-003	9.0000e-005	2.1470
Energy	2.3300e-003	0.0199	8.4600e-003	1.3000e-004		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	53.2479	53.2479	1.8100e-003	7.0000e-004	53.5032
Mobile	0.0304	0.1376	0.3445	1.1400e-003	0.0978	1.0000e-003	0.0988	0.0262	9.3000e-004	0.0272	0.0000	104.7085	104.7085	3.9000e-003	0.0000	104.8061
Waste						0.0000	0.0000		0.0000	0.0000	2.5577	0.0000	2.5577	0.1512	0.0000	6.3366
Water						0.0000	0.0000		0.0000	0.0000	0.2480	1.7326	1.9806	0.0256	6.2000e-004	2.8036
Total	0.3019	0.1600	0.5451	1.4900e-003	0.0978	0.0179	0.1157	0.0262	0.0179	0.0441	4.3311	160.2091	164.5402	0.1854	1.4100e-003	169.5964

	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
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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	10/9/2019	6/20/2020	5	183	
2	Architectural Coating	Architectural Coating	6/21/2020	7/9/2020	5	14	

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Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 86,020; Residential Outdoor: 28,673; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0
(Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
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
Building Construction	9	4.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Clean Paved Roads

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3.2 Building Construction - 2019**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	0.0708	0.6324	0.5149	8.1000e-004		0.0387	0.0387		0.0364	0.0364	0.0000	70.5313	70.5313	0.0172	0.0000	70.9608
Total	0.0708	0.6324	0.5149	8.1000e-004		0.0387	0.0387		0.0364	0.0364	0.0000	70.5313	70.5313	0.0172	0.0000	70.9608

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	1.5000e-004	3.8200e-003	9.9000e-004	1.0000e-005	2.0000e-004	3.0000e-005	2.3000e-004	6.0000e-005	3.0000e-005	8.0000e-005	0.0000	0.7871	0.7871	4.0000e-005	0.0000	0.7881
Worker	4.4000e-004	3.3000e-004	3.3700e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8624	0.8624	2.0000e-005	0.0000	0.8630
Total	5.9000e-004	4.1500e-003	4.3600e-003	2.0000e-005	1.1500e-003	4.0000e-005	1.1900e-003	3.1000e-004	4.0000e-005	3.4000e-004	0.0000	1.6495	1.6495	6.0000e-005	0.0000	1.6511

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3.2 Building Construction - 2019**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	0.0324	0.7066	0.5362	8.1000e-004		4.0700e-003	4.0700e-003		4.0700e-003	4.0700e-003	0.0000	70.5312	70.5312	0.0172	0.0000	70.9607
Total	0.0324	0.7066	0.5362	8.1000e-004		4.0700e-003	4.0700e-003		4.0700e-003	4.0700e-003	0.0000	70.5312	70.5312	0.0172	0.0000	70.9607

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	1.5000e-004	3.8200e-003	9.9000e-004	1.0000e-005	2.0000e-004	3.0000e-005	2.3000e-004	6.0000e-005	3.0000e-005	8.0000e-005	0.0000	0.7871	0.7871	4.0000e-005	0.0000	0.7881
Worker	4.4000e-004	3.3000e-004	3.3700e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8624	0.8624	2.0000e-005	0.0000	0.8630
Total	5.9000e-004	4.1500e-003	4.3600e-003	2.0000e-005	1.1500e-003	4.0000e-005	1.1900e-003	3.1000e-004	4.0000e-005	3.4000e-004	0.0000	1.6495	1.6495	6.0000e-005	0.0000	1.6511

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3.2 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	0.1304	1.1799	1.0362	1.6600e-003		0.0687	0.0687		0.0646	0.0646	0.0000	142.4401	142.4401	0.0348	0.0000	143.3089
Total	0.1304	1.1799	1.0362	1.6600e-003		0.0687	0.0687		0.0646	0.0646	0.0000	142.4401	142.4401	0.0348	0.0000	143.3089

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	2.5000e-004	7.0500e-003	1.8100e-003	2.0000e-005	4.0000e-004	4.0000e-005	4.4000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	1.6042	1.6042	8.0000e-005	0.0000	1.6062
Worker	8.3000e-004	6.0000e-004	6.1800e-003	2.0000e-005	1.9500e-003	1.0000e-005	1.9600e-003	5.2000e-004	1.0000e-005	5.3000e-004	0.0000	1.7117	1.7117	4.0000e-005	0.0000	1.7127
Total	1.0800e-003	7.6500e-003	7.9900e-003	4.0000e-005	2.3500e-003	5.0000e-005	2.4000e-003	6.4000e-004	4.0000e-005	6.8000e-004	0.0000	3.3159	3.3159	1.2000e-004	0.0000	3.3189

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3.2 Building Construction - 2020**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	0.0665	1.4486	1.0992	1.6600e-003		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003	0.0000	142.4400	142.4400	0.0348	0.0000	143.3087
Total	0.0665	1.4486	1.0992	1.6600e-003		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003	0.0000	142.4400	142.4400	0.0348	0.0000	143.3087

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	2.5000e-004	7.0500e-003	1.8100e-003	2.0000e-005	4.0000e-004	4.0000e-005	4.4000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	1.6042	1.6042	8.0000e-005	0.0000	1.6062
Worker	8.3000e-004	6.0000e-004	6.1800e-003	2.0000e-005	1.9500e-003	1.0000e-005	1.9600e-003	5.2000e-004	1.0000e-005	5.3000e-004	0.0000	1.7117	1.7117	4.0000e-005	0.0000	1.7127
Total	1.0800e-003	7.6500e-003	7.9900e-003	4.0000e-005	2.3500e-003	5.0000e-005	2.4000e-003	6.4000e-004	4.0000e-005	6.8000e-004	0.0000	3.3159	3.3159	1.2000e-004	0.0000	3.3189

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3.3 Architectural Coating - 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					
Archit. Coating	0.2990					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-003	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907
Total	0.3007	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907

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	2.0000e-005	2.0000e-005	1.8000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0487	0.0487	0.0000	0.0000	0.0487
Total	2.0000e-005	2.0000e-005	1.8000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0487	0.0487	0.0000	0.0000	0.0487

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3.3 Architectural Coating - 2020**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	0.2990					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-004	0.0165	0.0128	2.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907
Total	0.2998	0.0165	0.0128	2.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907

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	2.0000e-005	2.0000e-005	1.8000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0487	0.0487	0.0000	0.0000	0.0487
Total	2.0000e-005	2.0000e-005	1.8000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0487	0.0487	0.0000	0.0000	0.0487

4.0 Operational Detail - Mobile

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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	0.0304	0.1376	0.3445	1.1400e-003	0.0978	1.0000e-003	0.0988	0.0262	9.3000e-004	0.0272	0.0000	104.7085	104.7085	3.9000e-003	0.0000	104.8061
Unmitigated	0.0304	0.1376	0.3445	1.1400e-003	0.0978	1.0000e-003	0.0988	0.0262	9.3000e-004	0.0272	0.0000	104.7085	104.7085	3.9000e-003	0.0000	104.8061

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	114.24	118.92	103.44	261,830	261,830
Total	114.24	118.92	103.44	261,830	261,830

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.582298	0.039109	0.186022	0.123408	0.017184	0.005083	0.010615	0.023794	0.001605	0.001810	0.005454	0.002746	0.000871

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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	30.2251	30.2251	1.3700e-003	2.8000e-004	30.3436
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	30.2251	30.2251	1.3700e-003	2.8000e-004	30.3436
NaturalGas Mitigated	2.3300e-003	0.0199	8.4600e-003	1.3000e-004		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	23.0228	23.0228	4.4000e-004	4.2000e-004	23.1596
NaturalGas Unmitigated	2.3300e-003	0.0199	8.4600e-003	1.3000e-004		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	23.0228	23.0228	4.4000e-004	4.2000e-004	23.1596

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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					
Single Family Housing	431431	2.3300e-003	0.0199	8.4600e-003	1.3000e-004		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	23.0228	23.0228	4.4000e-004	4.2000e-004	23.1596
Total		2.3300e-003	0.0199	8.4600e-003	1.3000e-004		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	23.0228	23.0228	4.4000e-004	4.2000e-004	23.1596

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					
Single Family Housing	431431	2.3300e-003	0.0199	8.4600e-003	1.3000e-004		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	23.0228	23.0228	4.4000e-004	4.2000e-004	23.1596
Total		2.3300e-003	0.0199	8.4600e-003	1.3000e-004		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	23.0228	23.0228	4.4000e-004	4.2000e-004	23.1596

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	103898	30.2251	1.3700e-003	2.8000e-004	30.3436
Total		30.2251	1.3700e-003	2.8000e-004	30.3436

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	103898	30.2251	1.3700e-003	2.8000e-004	30.3436
Total		30.2251	1.3700e-003	2.8000e-004	30.3436

6.0 Area Detail**6.1 Mitigation Measures Area**

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	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	0.2692	2.5800e-003	0.1921	2.2000e-004		0.0153	0.0153		0.0153	0.0153	1.5253	0.5201	2.0454	3.0200e-003	9.0000e-005	2.1470
Unmitigated	0.2692	2.5800e-003	0.1921	2.2000e-004		0.0153	0.0153		0.0153	0.0153	1.5253	0.5201	2.0454	3.0200e-003	9.0000e-005	2.1470

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	0.0299					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1659					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0707	1.5500e-003	0.1029	2.1000e-004		0.0148	0.0148		0.0148	0.0148	1.5253	0.3745	1.8999	2.8800e-003	9.0000e-005	1.9979
Landscaping	2.7100e-003	1.0300e-003	0.0893	0.0000		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	0.1456	0.1456	1.4000e-004	0.0000	0.1491
Total	0.2692	2.5800e-003	0.1921	2.1000e-004		0.0153	0.0153		0.0153	0.0153	1.5253	0.5201	2.0454	3.0200e-003	9.0000e-005	2.1470

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6.2 Area by SubCategory**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	0.0299					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1659					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0707	1.5500e-003	0.1029	2.1000e-004		0.0148	0.0148		0.0148	0.0148	1.5253	0.3745	1.8999	2.8800e-003	9.0000e-005	1.9979
Landscaping	2.7100e-003	1.0300e-003	0.0893	0.0000		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	0.1456	0.1456	1.4000e-004	0.0000	0.1491
Total	0.2692	2.5800e-003	0.1921	2.1000e-004		0.0153	0.0153		0.0153	0.0153	1.5253	0.5201	2.0454	3.0200e-003	9.0000e-005	2.1470

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.9806	0.0256	6.2000e-004	2.8036
Unmitigated	1.9806	0.0256	6.2000e-004	2.8036

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.781848 / 0.492904	1.9806	0.0256	6.2000e-004	2.8036
Total		1.9806	0.0256	6.2000e-004	2.8036

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.781848 / 0.492904	1.9806	0.0256	6.2000e-004	2.8036
Total		1.9806	0.0256	6.2000e-004	2.8036

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.5577	0.1512	0.0000	6.3366
Unmitigated	2.5577	0.1512	0.0000	6.3366

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8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	12.6	2.5577	0.1512	0.0000	6.3366
Total		2.5577	0.1512	0.0000	6.3366

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	12.6	2.5577	0.1512	0.0000	6.3366
Total		2.5577	0.1512	0.0000	6.3366

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	31.34	Acre	31.34	1,365,170.40	0
Single Family Housing	76.00	Dwelling Unit	20.17	266,461.00	191

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics - Operational year 2023 and land use rural chosen.

Construction Phase - Construction schedule provided by project sponsor and adapted by Ramboll Environ.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Landscaping equipment count provided by project sponsor.

Off-road Equipment - Trenching equipment counts provided by project sponsor.

Trips and VMT - Non-default trip rates provided by project sponsor.

Demolition -

Grading - No grading during landscaping phase.

Area Coating -

Construction Off-road Equipment Mitigation - Assume all equipment Tier 2 with Level 3 VDECs.

Land Use - Lot acreage and square footage based on average lot size and total DU square footage. Population estimate provided by project sponsor.

On-road Fugitive Dust -

Vehicle Trips -

Vehicle Emission Factors -

Road Dust -

[illegible]

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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	70.00	7.00
tblConstructionPhase	NumDays	110.00	75.00
tblConstructionPhase	NumDays	75.00	15.00
tblConstructionPhase	NumDays	40.00	8.00
tblConstructionPhase	NumDays	40.00	44.00
tblConstructionPhase	PhaseEndDate	7/5/2019	5/6/2019
tblConstructionPhase	PhaseEndDate	11/8/2019	9/9/2019
tblConstructionPhase	PhaseEndDate	3/22/2019	11/10/2019
tblConstructionPhase	PhaseEndDate	10/18/2019	8/19/2019

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tblConstructionPhase	PhaseStartDate	3/23/2019	1/22/2019
tblConstructionPhase	PhaseStartDate	10/19/2019	8/20/2019
tblConstructionPhase	PhaseStartDate	1/22/2019	9/10/2019
tblConstructionPhase	PhaseStartDate	7/6/2019	5/7/2019
tblLandUse	BuildingSpaceSquareFeet	136,800.00	266,461.00
tblLandUse	LandUseSquareFeet	136,800.00	266,461.00
tblLandUse	LotAcreage	24.68	20.17
tblLandUse	Population	217.00	191.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Trenching
tblProjectCharacteristics	OperationalYear	2018	2023
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	15.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	200.00
tblTripsAndVMT	HaulingTripNumber	0.00	25.00
tblTripsAndVMT	WorkerTripNumber	15.00	5.00
tblTripsAndVMT	WorkerTripNumber	18.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00

2.0 Emissions Summary

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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					
2019	0.3311	3.1773	2.2707	4.0300e-003	0.4157	0.1516	0.5673	0.1791	0.1396	0.3186	0.0000	362.6410	362.6410	0.1077	0.0000	365.3324
Maximum	0.3311	3.1773	2.2707	4.0300e-003	0.4157	0.1516	0.5673	0.1791	0.1396	0.3186	0.0000	362.6410	362.6410	0.1077	0.0000	365.3324

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					
2019	0.1756	3.2923	2.4854	4.0300e-003	0.4157	0.0147	0.4303	0.1791	0.0146	0.1937	0.0000	362.6406	362.6406	0.1077	0.0000	365.3320
Maximum	0.1756	3.2923	2.4854	4.0300e-003	0.4157	0.0147	0.4303	0.1791	0.0146	0.1937	0.0000	362.6406	362.6406	0.1077	0.0000	365.3320

	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
Percent Reduction	46.96	-3.62	-9.45	0.00	0.00	90.34	24.15	0.00	89.52	39.21	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	1.8130	1.5785
2	4-1-2019	6-30-2019	1.0873	1.1190
3	7-1-2019	9-30-2019	0.5324	0.6751
		Highest	1.8130	1.5785

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	1.8099	0.0163	1.2161	1.3700e-003		0.0971	0.0971		0.0971	0.0971	9.6604	3.2943	12.9547	0.0191	5.5000e-004	13.5978
Energy	0.0147	0.1259	0.0536	8.0000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	337.2369	337.2369	0.0115	4.4600e-003	338.8534
Mobile	0.1631	0.6722	1.8581	6.7600e-003	0.6192	5.2600e-003	0.6245	0.1661	4.9100e-003	0.1710	0.0000	619.9486	619.9486	0.0209	0.0000	620.4702
Waste						0.0000	0.0000		0.0000	0.0000	16.2839	0.0000	16.2839	0.9624	0.0000	40.3428
Water						0.0000	0.0000		0.0000	0.0000	1.5710	10.9731	12.5441	0.1619	3.9100e-003	17.7562
Total	1.9878	0.8144	3.1277	8.9300e-003	0.6192	0.1125	0.7317	0.1661	0.1122	0.2783	27.5153	971.4529	998.9682	1.1757	8.9200e-003	1,031.0204

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2.2 Overall Operational**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	1.8099	0.0163	1.2161	1.3700e-003		0.0971	0.0971		0.0971	0.0971	9.6604	3.2943	12.9547	0.0191	5.5000e-004	13.5978
Energy	0.0147	0.1259	0.0536	8.0000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	337.2369	337.2369	0.0115	4.4600e-003	338.8534
Mobile	0.1631	0.6722	1.8581	6.7600e-003	0.6192	5.2600e-003	0.6245	0.1661	4.9100e-003	0.1710	0.0000	619.9486	619.9486	0.0209	0.0000	620.4702
Waste						0.0000	0.0000		0.0000	0.0000	16.2839	0.0000	16.2839	0.9624	0.0000	40.3428
Water						0.0000	0.0000		0.0000	0.0000	1.5710	10.9731	12.5441	0.1619	3.9100e-003	17.7562
Total	1.9878	0.8144	3.1277	8.9300e-003	0.6192	0.1125	0.7317	0.1661	0.1122	0.2783	27.5153	971.4529	998.9682	1.1757	8.9200e-003	1,031.0204

	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
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

3.0 Construction Detail**Construction Phase**

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/9/2019	5	7	
2	Site Preparation 1	Site Preparation	1/10/2019	1/21/2019	5	8	
3	Site Preparation - Landscaping	Site Preparation	9/10/2019	11/10/2019	5	44	
4	Grading	Grading	1/22/2019	5/6/2019	5	75	
5	Trenching	Trenching	5/7/2019	8/19/2019	5	75	
6	Paving	Paving	8/20/2019	9/9/2019	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 31.34

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation 1	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation 1	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation - Landscaping	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Tractors/Loaders/Backhoes	4	8.00	97	0.37
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

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
Demolition	6	5.00	0.00	30.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 1	7	10.00	0.00	15.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation - Landscaping	2	10.00	0.00	25.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	15.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	6	10.00	0.00	50.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	200.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Clean Paved Roads

3.2 Demolition - 2019**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					3.3000e-003	0.0000	3.3000e-003	5.0000e-004	0.0000	5.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0123	0.1252	0.0772	1.4000e-004		6.2800e-003	6.2800e-003		5.8400e-003	5.8400e-003	0.0000	12.1192	12.1192	3.3700e-003	0.0000	12.2035
Total	0.0123	0.1252	0.0772	1.4000e-004	3.3000e-003	6.2800e-003	9.5800e-003	5.0000e-004	5.8400e-003	6.3400e-003	0.0000	12.1192	12.1192	3.3700e-003	0.0000	12.2035

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3.2 Demolition - 2019**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	1.4000e-004	4.6700e-003	8.6000e-004	1.0000e-005	2.5000e-004	2.0000e-005	2.7000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	1.1488	1.1488	5.0000e-005	0.0000	1.1502
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	6.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1258	0.1258	0.0000	0.0000	0.1259
Total	2.0000e-004	4.7200e-003	1.3500e-003	1.0000e-005	3.9000e-004	2.0000e-005	4.1000e-004	1.1000e-004	2.0000e-005	1.3000e-004	0.0000	1.2746	1.2746	5.0000e-005	0.0000	1.2760

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					3.3000e-003	0.0000	3.3000e-003	5.0000e-004	0.0000	5.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4200e-003	0.1143	0.0864	1.4000e-004		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	12.1192	12.1192	3.3700e-003	0.0000	12.2035
Total	4.4200e-003	0.1143	0.0864	1.4000e-004	3.3000e-003	4.8000e-004	3.7800e-003	5.0000e-004	4.8000e-004	9.8000e-004	0.0000	12.1192	12.1192	3.3700e-003	0.0000	12.2035

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3.2 Demolition - 2019**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	1.4000e-004	4.6700e-003	8.6000e-004	1.0000e-005	2.5000e-004	2.0000e-005	2.7000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	1.1488	1.1488	5.0000e-005	0.0000	1.1502
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	6.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1258	0.1258	0.0000	0.0000	0.1259
Total	2.0000e-004	4.7200e-003	1.3500e-003	1.0000e-005	3.9000e-004	2.0000e-005	4.1000e-004	1.1000e-004	2.0000e-005	1.3000e-004	0.0000	1.2746	1.2746	5.0000e-005	0.0000	1.2760

3.3 Site Preparation 1 - 2019**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					0.0723	0.0000	0.0723	0.0397	0.0000	0.0397	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0173	0.1823	0.0883	1.5000e-004		9.5600e-003	9.5600e-003		8.8000e-003	8.8000e-003	0.0000	13.6675	13.6675	4.3200e-003	0.0000	13.7756
Total	0.0173	0.1823	0.0883	1.5000e-004	0.0723	9.5600e-003	0.0818	0.0397	8.8000e-003	0.0485	0.0000	13.6675	13.6675	4.3200e-003	0.0000	13.7756

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3.3 Site Preparation 1 - 2019**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	7.0000e-005	2.3300e-003	4.3000e-004	1.0000e-005	1.3000e-004	1.0000e-005	1.4000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.5744	0.5744	3.0000e-005	0.0000	0.5751
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	1.5000e-004	1.1000e-004	1.1200e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2875	0.2875	1.0000e-005	0.0000	0.2877
Total	2.2000e-004	2.4400e-003	1.5500e-003	1.0000e-005	4.5000e-004	1.0000e-005	4.6000e-004	1.1000e-004	1.0000e-005	1.3000e-004	0.0000	0.8619	0.8619	4.0000e-005	0.0000	0.8627

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					0.0723	0.0000	0.0723	0.0397	0.0000	0.0397	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8400e-003	0.1349	0.0918	1.5000e-004		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	13.6675	13.6675	4.3200e-003	0.0000	13.7756
Total	4.8400e-003	0.1349	0.0918	1.5000e-004	0.0723	5.7000e-004	0.0728	0.0397	5.7000e-004	0.0403	0.0000	13.6675	13.6675	4.3200e-003	0.0000	13.7756

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3.3 Site Preparation 1 - 2019**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	7.0000e-005	2.3300e-003	4.3000e-004	1.0000e-005	1.3000e-004	1.0000e-005	1.4000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.5744	0.5744	3.0000e-005	0.0000	0.5751
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	1.5000e-004	1.1000e-004	1.1200e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2875	0.2875	1.0000e-005	0.0000	0.2877
Total	2.2000e-004	2.4400e-003	1.5500e-003	1.0000e-005	4.5000e-004	1.0000e-005	4.6000e-004	1.1000e-004	1.0000e-005	1.3000e-004	0.0000	0.8619	0.8619	4.0000e-005	0.0000	0.8627

3.4 Site Preparation - Landscaping - 2019**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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1028	0.1013	1.4000e-004		6.8700e-003	6.8700e-003		6.3200e-003	6.3200e-003	0.0000	12.2759	12.2759	3.8800e-003	0.0000	12.3730
Total	0.0102	0.1028	0.1013	1.4000e-004	0.0000	6.8700e-003	6.8700e-003	0.0000	6.3200e-003	6.3200e-003	0.0000	12.2759	12.2759	3.8800e-003	0.0000	12.3730

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3.4 Site Preparation - Landscaping - 2019**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	1.1000e-004	3.8900e-003	7.1000e-004	1.0000e-005	2.1000e-004	2.0000e-005	2.3000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.9574	0.9574	4.0000e-005	0.0000	0.9585
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	8.1000e-004	6.1000e-004	6.1800e-003	2.0000e-005	1.7400e-003	1.0000e-005	1.7600e-003	4.6000e-004	1.0000e-005	4.8000e-004	0.0000	1.5810	1.5810	4.0000e-005	0.0000	1.5821
Total	9.2000e-004	4.5000e-003	6.8900e-003	3.0000e-005	1.9500e-003	3.0000e-005	1.9900e-003	5.2000e-004	2.0000e-005	5.5000e-004	0.0000	2.5384	2.5384	8.0000e-005	0.0000	2.5406

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4100e-003	0.1323	0.1031	1.4000e-004		8.0000e-004	8.0000e-004		8.0000e-004	8.0000e-004	0.0000	12.2759	12.2759	3.8800e-003	0.0000	12.3730
Total	6.4100e-003	0.1323	0.1031	1.4000e-004	0.0000	8.0000e-004	8.0000e-004	0.0000	8.0000e-004	8.0000e-004	0.0000	12.2759	12.2759	3.8800e-003	0.0000	12.3730

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3.4 Site Preparation - Landscaping - 2019**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	1.1000e-004	3.8900e-003	7.1000e-004	1.0000e-005	2.1000e-004	2.0000e-005	2.3000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.9574	0.9574	4.0000e-005	0.0000	0.9585
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	8.1000e-004	6.1000e-004	6.1800e-003	2.0000e-005	1.7400e-003	1.0000e-005	1.7600e-003	4.6000e-004	1.0000e-005	4.8000e-004	0.0000	1.5810	1.5810	4.0000e-005	0.0000	1.5821
Total	9.2000e-004	4.5000e-003	6.8900e-003	3.0000e-005	1.9500e-003	3.0000e-005	1.9900e-003	5.2000e-004	2.0000e-005	5.5000e-004	0.0000	2.5384	2.5384	8.0000e-005	0.0000	2.5406

3.5 Grading - 2019**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					0.3253	0.0000	0.3253	0.1349	0.0000	0.1349	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1777	2.0445	1.2516	2.3300e-003		0.0894	0.0894		0.0822	0.0822	0.0000	208.8800	208.8800	0.0661	0.0000	210.5321
Total	0.1777	2.0445	1.2516	2.3300e-003	0.3253	0.0894	0.4146	0.1349	0.0822	0.2171	0.0000	208.8800	208.8800	0.0661	0.0000	210.5321

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3.5 Grading - 2019**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	7.0000e-005	2.3300e-003	4.3000e-004	1.0000e-005	1.3000e-004	1.0000e-005	1.4000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.5744	0.5744	3.0000e-005	0.0000	0.5751
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	2.7600e-003	2.0600e-003	0.0211	6.0000e-005	5.9500e-003	4.0000e-005	5.9900e-003	1.5800e-003	4.0000e-005	1.6200e-003	0.0000	5.3898	5.3898	1.5000e-004	0.0000	5.3935
Total	2.8300e-003	4.3900e-003	0.0215	7.0000e-005	6.0800e-003	5.0000e-005	6.1300e-003	1.6100e-003	5.0000e-005	1.6600e-003	0.0000	5.9643	5.9643	1.8000e-004	0.0000	5.9686

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					0.3253	0.0000	0.3253	0.1349	0.0000	0.1349	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0679	1.9215	1.3771	2.3300e-003		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003	0.0000	208.8797	208.8797	0.0661	0.0000	210.5319
Total	0.0679	1.9215	1.3771	2.3300e-003	0.3253	7.5000e-003	0.3328	0.1349	7.5000e-003	0.1424	0.0000	208.8797	208.8797	0.0661	0.0000	210.5319

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3.5 Grading - 2019**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	7.0000e-005	2.3300e-003	4.3000e-004	1.0000e-005	1.3000e-004	1.0000e-005	1.4000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.5744	0.5744	3.0000e-005	0.0000	0.5751
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	2.7600e-003	2.0600e-003	0.0211	6.0000e-005	5.9500e-003	4.0000e-005	5.9900e-003	1.5800e-003	4.0000e-005	1.6200e-003	0.0000	5.3898	5.3898	1.5000e-004	0.0000	5.3935
Total	2.8300e-003	4.3900e-003	0.0215	7.0000e-005	6.0800e-003	5.0000e-005	6.1300e-003	1.6100e-003	5.0000e-005	1.6600e-003	0.0000	5.9643	5.9643	1.8000e-004	0.0000	5.9686

3.6 Trenching - 2019**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	0.0545	0.5518	0.5901	8.5000e-004		0.0331	0.0331		0.0305	0.0305	0.0000	76.6260	76.6260	0.0242	0.0000	77.2321
Total	0.0545	0.5518	0.5901	8.5000e-004		0.0331	0.0331		0.0305	0.0305	0.0000	76.6260	76.6260	0.0242	0.0000	77.2321

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3.6 Trenching - 2019**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	2.3000e-004	7.7800e-003	1.4300e-003	2.0000e-005	4.2000e-004	3.0000e-005	4.5000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	1.9147	1.9147	9.0000e-005	0.0000	1.9169
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	1.3800e-003	1.0300e-003	0.0105	3.0000e-005	2.9700e-003	2.0000e-005	2.9900e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6949	2.6949	7.0000e-005	0.0000	2.6968
Total	1.6100e-003	8.8100e-003	0.0120	5.0000e-005	3.3900e-003	5.0000e-005	3.4400e-003	9.1000e-004	5.0000e-005	9.6000e-004	0.0000	4.6096	4.6096	1.6000e-004	0.0000	4.6137

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	0.0369	0.7822	0.6452	8.5000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003	0.0000	76.6259	76.6259	0.0242	0.0000	77.2320
Total	0.0369	0.7822	0.6452	8.5000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003	0.0000	76.6259	76.6259	0.0242	0.0000	77.2320

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3.6 Trenching - 2019**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	2.3000e-004	7.7800e-003	1.4300e-003	2.0000e-005	4.2000e-004	3.0000e-005	4.5000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	1.9147	1.9147	9.0000e-005	0.0000	1.9169
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	1.3800e-003	1.0300e-003	0.0105	3.0000e-005	2.9700e-003	2.0000e-005	2.9900e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6949	2.6949	7.0000e-005	0.0000	2.6968
Total	1.6100e-003	8.8100e-003	0.0120	5.0000e-005	3.3900e-003	5.0000e-005	3.4400e-003	9.1000e-004	5.0000e-005	9.6000e-004	0.0000	4.6096	4.6096	1.6000e-004	0.0000	4.6137

3.7 Paving - 2019**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	0.0109	0.1143	0.1100	1.7000e-004		6.1800e-003	6.1800e-003		5.6900e-003	5.6900e-003	0.0000	15.3564	15.3564	4.8600e-003	0.0000	15.4779
Paving	0.0411					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0520	0.1143	0.1100	1.7000e-004		6.1800e-003	6.1800e-003		5.6900e-003	5.6900e-003	0.0000	15.3564	15.3564	4.8600e-003	0.0000	15.4779

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3.7 Paving - 2019**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	9.1000e-004	0.0311	5.7000e-003	8.0000e-005	1.6900e-003	1.2000e-004	1.8200e-003	4.7000e-004	1.2000e-004	5.8000e-004	0.0000	7.6589	7.6589	3.5000e-004	0.0000	7.6677
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	4.1000e-004	3.1000e-004	3.1600e-003	1.0000e-005	8.9000e-004	1.0000e-005	9.0000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.8085	0.8085	2.0000e-005	0.0000	0.8090
Total	1.3200e-003	0.0314	8.8600e-003	9.0000e-005	2.5800e-003	1.3000e-004	2.7200e-003	7.1000e-004	1.3000e-004	8.2000e-004	0.0000	8.4674	8.4674	3.7000e-004	0.0000	8.4767

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	6.9800e-003	0.1509	0.1297	1.7000e-004		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	15.3564	15.3564	4.8600e-003	0.0000	15.4778
Paving	0.0411					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0480	0.1509	0.1297	1.7000e-004		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	15.3564	15.3564	4.8600e-003	0.0000	15.4778

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3.7 Paving - 2019**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	9.1000e-004	0.0311	5.7000e-003	8.0000e-005	1.6900e-003	1.2000e-004	1.8200e-003	4.7000e-004	1.2000e-004	5.8000e-004	0.0000	7.6589	7.6589	3.5000e-004	0.0000	7.6677
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	4.1000e-004	3.1000e-004	3.1600e-003	1.0000e-005	8.9000e-004	1.0000e-005	9.0000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.8085	0.8085	2.0000e-005	0.0000	0.8090
Total	1.3200e-003	0.0314	8.8600e-003	9.0000e-005	2.5800e-003	1.3000e-004	2.7200e-003	7.1000e-004	1.3000e-004	8.2000e-004	0.0000	8.4674	8.4674	3.7000e-004	0.0000	8.4767

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	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	0.1631	0.6722	1.8581	6.7600e-003	0.6192	5.2600e-003	0.6245	0.1661	4.9100e-003	0.1710	0.0000	619.9486	619.9486	0.0209	0.0000	620.4702
Unmitigated	0.1631	0.6722	1.8581	6.7600e-003	0.6192	5.2600e-003	0.6245	0.1661	4.9100e-003	0.1710	0.0000	619.9486	619.9486	0.0209	0.0000	620.4702

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	723.52	753.16	655.12	1,658,258	1,658,258
Total	723.52	753.16	655.12	1,658,258	1,658,258

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.590657	0.037535	0.185105	0.118290	0.015611	0.005013	0.010768	0.024764	0.001635	0.001742	0.005351	0.002726	0.000802
Single Family Housing	0.590657	0.037535	0.185105	0.118290	0.015611	0.005013	0.010768	0.024764	0.001635	0.001742	0.005351	0.002726	0.000802

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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	191.4258	191.4258	8.6600e-003	1.7900e-003	192.1759
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	191.4258	191.4258	8.6600e-003	1.7900e-003	192.1759
NaturalGas Mitigated	0.0147	0.1259	0.0536	8.0000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	145.8111	145.8111	2.7900e-003	2.6700e-003	146.6775
NaturalGas Unmitigated	0.0147	0.1259	0.0536	8.0000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	145.8111	145.8111	2.7900e-003	2.6700e-003	146.6775

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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					
Other Asphalt Surfaces	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
Single Family Housing	2.7324e+006	0.0147	0.1259	0.0536	8.0000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	145.8111	145.8111	2.7900e-003	2.6700e-003	146.6775
Total		0.0147	0.1259	0.0536	8.0000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	145.8111	145.8111	2.7900e-003	2.6700e-003	146.6775

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					
Other Asphalt Surfaces	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
Single Family Housing	2.7324e+006	0.0147	0.1259	0.0536	8.0000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	145.8111	145.8111	2.7900e-003	2.6700e-003	146.6775
Total		0.0147	0.1259	0.0536	8.0000e-004		0.0102	0.0102		0.0102	0.0102	0.0000	145.8111	145.8111	2.7900e-003	2.6700e-003	146.6775

Davidon Homes, Magee Preserve - Overall Site Preparation - Contra Costa County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	658021	191.4258	8.6600e-003	1.7900e-003	192.1759
Total		191.4258	8.6600e-003	1.7900e-003	192.1759

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	658021	191.4258	8.6600e-003	1.7900e-003	192.1759
Total		191.4258	8.6600e-003	1.7900e-003	192.1759

6.0 Area Detail**6.1 Mitigation Measures Area**

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	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	1.8099	0.0163	1.2161	1.3700e-003		0.0971	0.0971		0.0971	0.0971	9.6604	3.2943	12.9547	0.0191	5.5000e-004	13.5978
Unmitigated	1.8099	0.0163	1.2161	1.3700e-003		0.0971	0.0971		0.0971	0.0971	9.6604	3.2943	12.9547	0.0191	5.5000e-004	13.5978

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	0.2161					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1289					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.4479	9.8200e-003	0.6514	1.3400e-003		0.0939	0.0939		0.0939	0.0939	9.6604	2.3720	12.0324	0.0183	5.5000e-004	12.6533
Landscaping	0.0170	6.5100e-003	0.5647	3.0000e-005		3.1300e-003	3.1300e-003		3.1300e-003	3.1300e-003	0.0000	0.9224	0.9224	8.9000e-004	0.0000	0.9446
Total	1.8099	0.0163	1.2161	1.3700e-003		0.0971	0.0971		0.0971	0.0971	9.6604	3.2943	12.9547	0.0191	5.5000e-004	13.5978

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6.2 Area by SubCategory**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	0.2161					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1289					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.4479	9.8200e-003	0.6514	1.3400e-003		0.0939	0.0939		0.0939	0.0939	9.6604	2.3720	12.0324	0.0183	5.5000e-004	12.6533
Landscaping	0.0170	6.5100e-003	0.5647	3.0000e-005		3.1300e-003	3.1300e-003		3.1300e-003	3.1300e-003	0.0000	0.9224	0.9224	8.9000e-004	0.0000	0.9446
Total	1.8099	0.0163	1.2161	1.3700e-003		0.0971	0.0971		0.0971	0.0971	9.6604	3.2943	12.9547	0.0191	5.5000e-004	13.5978

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	12.5441	0.1619	3.9100e-003	17.7562
Unmitigated	12.5441	0.1619	3.9100e-003	17.7562

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.95171 / 3.12173	12.5441	0.1619	3.9100e-003	17.7562
Total		12.5441	0.1619	3.9100e-003	17.7562

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.95171 / 3.12173	12.5441	0.1619	3.9100e-003	17.7562
Total		12.5441	0.1619	3.9100e-003	17.7562

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	16.2839	0.9624	0.0000	40.3428
Unmitigated	16.2839	0.9624	0.0000	40.3428

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8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	80.22	16.2839	0.9624	0.0000	40.3428
Total		16.2839	0.9624	0.0000	40.3428

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	80.22	16.2839	0.9624	0.0000	40.3428
Total		16.2839	0.9624	0.0000	40.3428

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

Davidon Homes, Magee Preserve - Operation - Contra Costa County, Annual

Davidon Homes, Magee Preserve - Operation

Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	86.00	Dwelling Unit	20.17	271,935.00	216

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	290	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - updated PG&E Factor

Land Use - Sponsor provided data

Construction Phase - no construction

Grading -

Architectural Coating -

Vehicle Trips - traffic study

Woodstoves - no woodstoves/fireplaces in new developments per BAAQMD, every house has a natural gas fireplace

Area Coating -

Landscape Equipment -

Energy Use - updated T24 energy to 2016

Land Use Change - Impacted 51.51 acres of grassland for development

Sequestration - Removed 49 trees, added 500

Fleet Mix - LDA, LDT only

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	370.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	35.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	10.00	0.00
tblEnergyUse	LightingElect	1,608.84	804.42
tblEnergyUse	T24E	368.92	325.94
tblEnergyUse	T24NG	32,797.58	25,874.52
tblFireplaces	NumberGas	21.50	86.00
tblFireplaces	NumberNoFireplace	6.88	0.00
tblFireplaces	NumberWood	36.98	0.00
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.59	0.72
tblFleetMix	LDT1	0.04	0.05
tblFleetMix	LDT2	0.19	0.22
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.0130e-003	0.00
tblFleetMix	MCY	5.3510e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	8.0200e-004	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.6350e-003	0.00
tblFleetMix	SBUS	2.7260e-003	0.00
tblFleetMix	UBUS	1.7420e-003	0.00
tblLandUse	BuildingSpaceSquareFeet	154,800.00	271,935.00
tblLandUse	LandUseSquareFeet	154,800.00	271,935.00

tblLandUse	LotAcreage	27.92	20.17
tblLandUse	Population	246.00	216.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	OperationalYear	2018	2023
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	451.00
tblVehicleTrips	ST_TR	9.91	9.76
tblVehicleTrips	SU_TR	8.62	9.76
tblVehicleTrips	WD_TR	9.52	9.76
tblWoodstoves	NumberCatalytic	3.44	0.00
tblWoodstoves	NumberNoncatalytic	3.44	0.00

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					
2017	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
Maximum	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

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
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Year	tons/yr										MT/yr					
2017	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
Maximum	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

	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
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)
		Highest		

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	1.2738	0.0166	0.6427	9.0000e-005		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	11.7793	11.7793	1.2100e-003	2.0000e-004	11.8681
Energy	0.0135	0.1150	0.0490	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003	0.0000	221.5849	221.5849	0.0114	4.2700e-003	223.1423
Mobile	0.1221	0.1397	1.6411	5.8700e-003	0.7109	4.4900e-003	0.7154	0.1890	4.1400e-003	0.1931	0.0000	531.3460	531.3460	9.7400e-003	0.0000	531.5894
Waste						0.0000	0.0000		0.0000	0.0000	18.4153	0.0000	18.4153	1.0883	0.0000	45.6232
Water						0.0000	0.0000		0.0000	0.0000	1.7777	5.6146	7.3922	0.1831	4.4300e-003	13.2902
Total	1.4093	0.2713	2.3327	6.6900e-003	0.7109	0.0181	0.7290	0.1890	0.0177	0.2067	20.1930	770.3247	790.5177	1.2938	8.9000e-003	825.5132

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	1.2738	0.0166	0.6427	9.0000e-005		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	11.7793	11.7793	1.2100e-003	2.0000e-004	11.8681
Energy	0.0135	0.1150	0.0490	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003	0.0000	221.5849	221.5849	0.0114	4.2700e-003	223.1423
Mobile	0.1221	0.1397	1.6411	5.8700e-003	0.7109	4.4900e-003	0.7154	0.1890	4.1400e-003	0.1931	0.0000	531.3460	531.3460	9.7400e-003	0.0000	531.5894
Waste						0.0000	0.0000		0.0000	0.0000	18.4153	0.0000	18.4153	1.0883	0.0000	45.6232
Water						0.0000	0.0000		0.0000	0.0000	1.7777	5.6146	7.3922	0.1831	4.4300e-003	13.2902
Total	1.4093	0.2713	2.3327	6.6900e-003	0.7109	0.0181	0.7290	0.1890	0.0177	0.2067	20.1930	770.3247	790.5177	1.2938	8.9000e-003	825.5132

	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
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

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	319.3080
Vegetation Land Change	-222.0081
Total	97.2999

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/28/2017	8/27/2017	5	0	
2	Site Preparation	Site Preparation	8/28/2017	8/27/2017	5	0	
3	Grading	Grading	8/28/2017	8/27/2017	5	0	
4	Building Construction	Building Construction	8/28/2017	8/27/2017	5	0	
5	Paving	Paving	8/28/2017	8/27/2017	5	0	
6	Architectural Coating	Architectural Coating	8/28/2017	8/27/2017	5	0	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 550,668; Residential Outdoor: 183,556; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	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
Demolition	6	15.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	31.00	9.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

Unmitigated Construction On-Site

[illegible]

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	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
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	0.0000	0.0000	0.0000

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	0.0000	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
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	0.0000	0.0000	0.0000

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					

[illegible]

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

[illegible]

Unmitigated Construction Off-Site

[illegible]

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	0.0000	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
Off-Road	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
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	0.0000	0.0000	0.0000

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	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
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	0.0000	0.0000	0.0000

3.4 Grading - 2017

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
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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	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
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	0.0000	0.0000	0.0000

3.5 Building Construction - 2017

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	0.0000	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
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	0.0000	0.0000	0.0000

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
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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	0.0000	0.0000	0.0000
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3.6 Paving - 2017

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	0.0000	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
Paving	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
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	0.0000	0.0000	0.0000

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	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
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	0.0000	0.0000	0.0000

Mitigated Construction On-Site

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	0.0000	0.0000	0.0000
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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	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
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	0.0000	0.0000	0.0000

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	0.0000	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
Off-Road	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
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	0.0000	0.0000	0.0000

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	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
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	0.0000	0.0000	0.0000

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	0.1221	0.1397	1.6411	5.8700e-003	0.7109	4.4900e-003	0.7154	0.1890	4.1400e-003	0.1931	0.0000	531.3460	531.3460	9.7400e-003	0.0000	531.5894
Unmitigated	0.1221	0.1397	1.6411	5.8700e-003	0.7109	4.4900e-003	0.7154	0.1890	4.1400e-003	0.1931	0.0000	531.3460	531.3460	9.7400e-003	0.0000	531.5894

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	839.36	839.36	839.36	1,938,592	1,938,592

Total	839.36	839.36	839.36	1,938,592	1,938,592
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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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.724888	0.050641	0.224471	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

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	88.3601	88.3601	8.8400e-003	1.8300e-003	89.1258
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	88.3601	88.3601	8.8400e-003	1.8300e-003	89.1258
NaturalGas Mitigated	0.0135	0.1150	0.0490	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003	0.0000	133.2248	133.2248	2.5500e-003	2.4400e-003	134.0165
NaturalGas Unmitigated	0.0135	0.1150	0.0490	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003	0.0000	133.2248	133.2248	2.5500e-003	2.4400e-003	134.0165

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					
Single Family Housing	2.49654e+006	0.0135	0.1150	0.0490	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003	0.0000	133.2248	133.2248	2.5500e-003	2.4400e-003	134.0165
Total		0.0135	0.1150	0.0490	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003	0.0000	133.2248	133.2248	2.5500e-003	2.4400e-003	134.0165

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					
Single Family Housing	2.49654e+006	0.0135	0.1150	0.0490	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003	0.0000	133.2248	133.2248	2.5500e-003	2.4400e-003	134.0165
Total		0.0135	0.1150	0.0490	7.3000e-004		9.3000e-003	9.3000e-003		9.3000e-003	9.3000e-003	0.0000	133.2248	133.2248	2.5500e-003	2.4400e-003	134.0165

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	671726	88.3601	8.8400e-003	1.8300e-003	89.1258

Total		88.3601	8.8400e-003	1.8300e-003	89.1258
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Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	671726	88.3601	8.8400e-003	1.8300e-003	89.1258
Total		88.3601	8.8400e-003	1.8300e-003	89.1258

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	1.2738	0.0166	0.6427	9.0000e-005		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	11.7793	11.7793	1.2100e-003	2.0000e-004	11.8681
Unmitigated	1.2738	0.0166	0.6427	9.0000e-005		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	11.7793	11.7793	1.2100e-003	2.0000e-004	11.8681

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	0.1914					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0620					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.0800e-003	9.2700e-003	3.9400e-003	6.0000e-005		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	10.7362	10.7362	2.1000e-004	2.0000e-004	10.8000
Landscaping	0.0192	7.3600e-003	0.6387	3.0000e-005		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003	0.0000	1.0431	1.0431	1.0000e-003	0.0000	1.0682
Total	1.2738	0.0166	0.6426	9.0000e-005		4.2900e-003	4.2900e-003		4.2900e-003	4.2900e-003	0.0000	11.7793	11.7793	1.2100e-003	2.0000e-004	11.8681

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	0.1914					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0620					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.0800e-003	9.2700e-003	3.9400e-003	6.0000e-005		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	10.7362	10.7362	2.1000e-004	2.0000e-004	10.8000
Landscaping	0.0192	7.3600e-003	0.6387	3.0000e-005		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003	0.0000	1.0431	1.0431	1.0000e-003	0.0000	1.0682
Total	1.2738	0.0166	0.6426	9.0000e-005		4.2900e-003	4.2900e-003		4.2900e-003	4.2900e-003	0.0000	11.7793	11.7793	1.2100e-003	2.0000e-004	11.8681

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.3922	0.1831	4.4300e-003	13.2902
Unmitigated	7.3922	0.1831	4.4300e-003	13.2902

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	5.60325 / 3.53248	7.3922	0.1831	4.4300e-003	13.2902
Total		7.3922	0.1831	4.4300e-003	13.2902

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
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Land Use	Mgal	MT/yr			
Single Family Housing	5.60325 / 3.53248	7.3922	0.1831	4.4300e-003	13.2902
Total		7.3922	0.1831	4.4300e-003	13.2902

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	18.4153	1.0883	0.0000	45.6232
Unmitigated	18.4153	1.0883	0.0000	45.6232

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	90.72	18.4153	1.0883	0.0000	45.6232

Total		18.4153	1.0883	0.0000	45.6232
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Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	90.72	18.4153	1.0883	0.0000	45.6232
Total		18.4153	1.0883	0.0000	45.6232

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	97.2999	0.0000	0.0000	97.2999

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	410.1 / 358.59	-222.0081	0.0000	0.0000	-222.0081
Total		-222.0081	0.0000	0.0000	-222.0081

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			

Miscellaneous	451	319.3080	0.0000	0.0000	319.3080
Total		319.3080	0.0000	0.0000	319.3080