

# Draft Analysis of Impacts to Air Quality and Greenhouse Gas from Proposed Residential development

Williams, California

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## SECTION 1: INTRODUCTION

Environmental Permitting Specialists (EPS) has been retained by the City of Williams (Colusa County) California to evaluate impacts to air quality and greenhouse gas from a proposed residential development. This analysis has been prepared in support of an environmental review being conducted by the Planning Department at the City of Williams.

The project, known as, Valley Ranch Unit 3, would be located on an approximately 17.3 acre site located at the Southeast corner of I-5 and E street in the City of Williams. It has been assigned an Assessor's Parcel Number 005-270-037. The project consists of 103 individual family style homes. Figures 1 and 2 illustrate the project location and site map respectively.

The proposed project will be developed over the next five years with full buildout tentatively expected in 2026. Construction is expected to begin in early 2022 with full occupancy sometime in 2026.

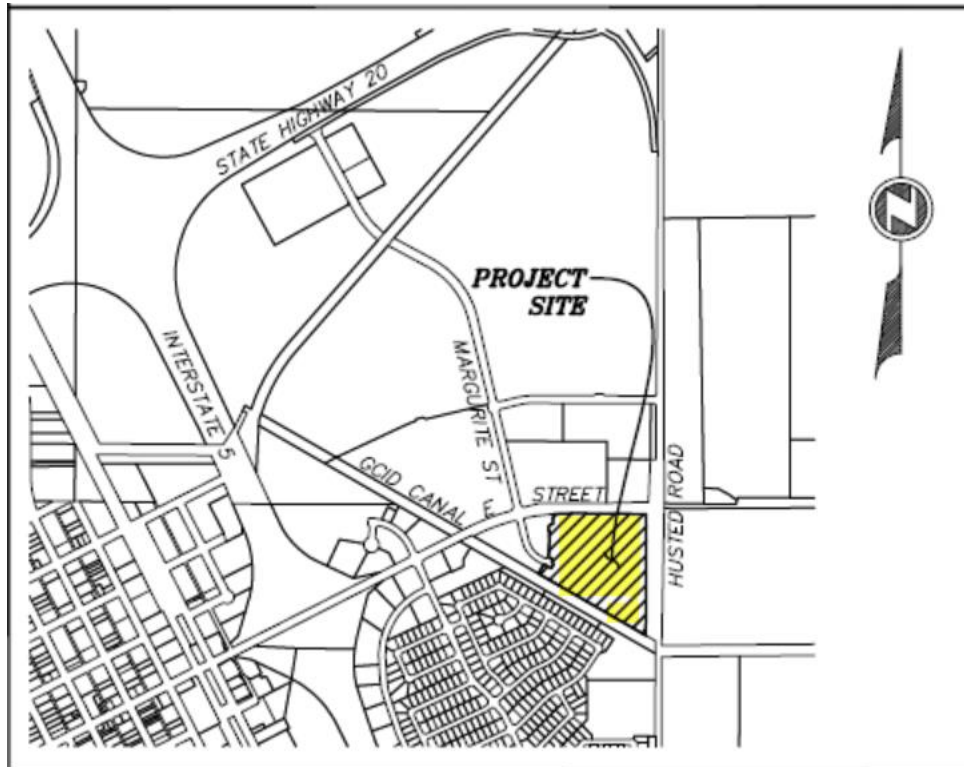
The objective of the proposed analysis is to evaluate two categories of impacts associated with the construction and operation (occupancy) phases of this Project:

1. Air Quality Impacts
2. Impacts from GHG Emissions

The overall approach used in this analysis is to quantify the emission rates of regulated air pollutants for the construction and occupancy phases and then compare the emission rates with thresholds of significance established by the Colusa County Air Pollution Control District (CCAPCD). The project is considered to have potentially significant environmental impact if any of the annual emission rates exceed the thresholds of significance established by CCAPCD.

This report is divided into 6 sections. Immediately following this Introduction, the projects metrics are described in Section 2. Next, the methodology for calculating air quality and GHG emissions is discussed in Section 3. The Project impacts are discussed in Section 4. The report concludes with a discussion of the significance of the project's impacts on air quality and GHG (Section 5). References, technical details and calculations are provided in Section 6 and in the Appendix respectively.

Figure 1-1  
Vicinity Map  
Source: City of Williams



# Figure 1-2 Site Map

Source: City of Williams



## SECTION 2: PROJECT DETAILS

As noted in the Introduction, the proposed project would construct 103 individual family homes over five years. Since market conditions can change over five years, it is not possible to specify an exact construction schedule for proposed development. Therefore, EPS has assumed an even growth scenario that assumes 25 residences will be built annually on 4 acres for the first 4 years (2022 to 2025) and the remaining 3 residences being completed in 2026.

Using an even growth scenario, impacts from construction of 25 residences are calculated for year 2022. Occupancy emissions after full buildout are assumed to equal four times the emissions calculated for year 2022. Table 2-1 summarizes all the project metrics used to calculate emissions for 2022.

Phase	Details	Comments	
<b>Construction</b>	Start Date	January 1, 2022	
	End Date	December 31, 2022	
	Lot Area	4 acres	
	Residential Units	25	
	Construction Related Traffic	Default Values	Note 1.
<b>Operational Per Unit Residence</b>	Start Date	January 1, 2023	
	Average Daily Traffic	9.44 trips/unit/weekday	Traffic Study <sup>1</sup>
	Trip Length	5 miles	Note 2
	Energy Usage (Electricity)	6,365 kWh/unit/yr	Note 1
	Energy Usage (Natural Gas)	24,038 kBtu/yr	Note 1
	Water Usage Per Unit	1.6 million gallons/yr Indoor 1.0 million gallon outdoor	Note 1
Solid Waste Per Unit	25.92 million tons/yr	Note 1	

**Note 1.**  
Based on recommended default value for commercial development Ref: CalEEMod emissions model version 2016.3.2. Available at: <http://caleemod.com/>

**Note 2.**  
The trip length is conservatively estimated to equal 5 miles. Actual trip length is expected to be less than half of this value since the town of Williams is only 4.95 square miles. The distances from the center to the outskirts of the town is 0.9 mile.

<sup>1</sup> W-Trans (2021): "Transportation Impact Study for Valley Ranch 3 Residential Subdivision", for the City of Williams, CA November 8, 2021.

## SECTION 3: CALCULATION METHODOLOGY

The construction and operation of the proposed housing development would release a variety of air pollutants, including GHG emissions. Project impacts are directly related to short-term and long-term emissions of these pollutants. This section identifies these pollutants and describes how they were be quantified.

### 3.1 Emissions of Criteria Air Pollutants

Criteria air pollutants refers to those pollutants for which the state and/or the federal government has established ambient (outside) air quality standards. The following criteria air pollutants will be quantified for the current project:

- Oxides of Nitrogen (NO<sub>x</sub>)
- Reactive Organic Compounds (ROG)
- Particulate Matter (PM-10)
- Fine Particulate Matter (PM-2.5)
- Carbon Monoxide
- Sulfur Dioxide (SO<sub>2</sub>)

The maximum daily emission rates of each of these air pollutants will be quantified using the CalEEMod emissions model. This model is recommended by the SMAQMD. Version 2020.4.0 of this model will be used. These emissions would be released during the construction and operational phases.

### 3.2 Emissions of GHG Emissions

Greenhouse gases refer to a variety of gases such as carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), methane (CH<sub>4</sub>), hydrofluorocarbons, and others. The current analysis is limited to emissions of CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> only. The project will not emit hydrofluorocarbons or other known greenhouse gases. GHG emissions will be reported in terms of annual metric tons of carbon dioxide equivalents [MT CO<sub>2</sub> (e)].

As with criteria air pollutants, Version 2020.4.0 of the CalEEMod emissions model will be used to calculate annual GHG emissions in terms of CO<sub>2</sub>(e). These emissions would be released during both the construction and operational phases.

### 3.3 Emissions of Toxic Air Emissions

Toxic air pollutants refer to those air pollutants for which ambient air quality standards have not been established. The proposed housing development is not considered a source of toxic

air There would be trace amounts of diesel exhaust particulate matter released during the construction phase from various equipment during the site preparation/grading phases.

## SECTION 4: PROJECT IMPACTS

This section discusses the air quality, GHG and public health impacts associated with the Project. The significance of the impacts is discussed in Section 5.

### 4.1 Impacts to Air Quality

Impacts to air quality were determined by calculating the maximum annual emission rate of each the criteria air pollutant identified earlier in Section 3.1.

Based on the use of the CalEEMod emissions model, the daily emission rates are summarized in Table 4-1. Annual emissions for the construction phase range from 0.077 tons/year to 0.75 tons/year depending on the pollutant. Emissions for the operational phase range from 0.2 tons/year to 1.92 tons/year depending on the pollutant.

**Table 4-1**  
**Summary of Maximum Daily Emissions**  
(in tons/year)

#### Construction Phase

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Year	tons/yr									
2022	0.7561	0.4821	0.4752	8.5000e-004	0.1071	0.0252	0.1323	0.0535	0.0239	0.0774
Maximum	0.7561	0.4821	0.4752	8.5000e-004	0.1071	0.0252	0.1323	0.0535	0.0239	0.0774



**Table 4-2 . . . Continued**  
**Summary of Annual Emissions**  
(in tons per year)

Operational (Occupancy Phase)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Category	tons/yr									
Area	1.8204	0.0328	2.1220	3.5200e-003		0.2725	0.2725		0.2725	0.2725
Energy	3.2400e-003	0.0277	0.0118	1.8000e-004		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003
Mobile	0.1009	0.1400	0.7594	1.5000e-003	0.1401	1.4700e-003	0.1416	0.0375	1.3800e-003	0.0388
Waste						0.0000	0.0000		0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000
<b>Total</b>	<b>1.9246</b>	<b>0.2004</b>	<b>2.8932</b>	<b>5.2000e-003</b>	<b>0.1401</b>	<b>0.2762</b>	<b>0.4163</b>	<b>0.0375</b>	<b>0.2761</b>	<b>0.3136</b>

## 4.2 Impacts from GHG Emissions

### 3.3 Impacts from Toxic Air Emissions

Toxic air pollutants refer to those air pollutants for which ambient air quality standards have not been established. The proposed housing development is not considered a source of toxic air. There would be trace amounts of diesel exhaust particulate matter released during the construction phase from various equipment during the site preparation/grading phases. The annual emission rate of diesel particulate matter (represented by exhaust PM-2.5) is estimated to equal 0.0239 tons/year (47.8 lbs/year). Given the relatively low annual emission rate and the brief duration (less than 3 months), exposure to DPM would not pose a significant health risk to the community.

## SECTION 5: SIGNIFICANCE OF PROJECT IMPACTS

The results of the current analysis for criteria air pollutants are compared with mass emission thresholds established by CCAPCDD. The significance of project impacts for the construction and operational phases is summarized in Table 5-1.

The City of Williams has not formally established any thresholds of significance for GHG emissions. Instead, the City has relied on thresholds used to identify significant sources of GHG emissions in the State's Cap and Trade program [Title 17, Section 95812(c)(1)]. This threshold is set at 25,000 metric tons per year.

California Air Resources Board (CARB) acknowledged that the 25,000 MT/year threshold is used for the mandatory reporting for the Cap and Trade program and not established as a CEQA threshold for GHG emissions. However, the California Air Pollution Control Officers Association (CAPCOA) identified 25,000 MT/yr as a threshold in their January 2008 report *"CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Air Quality Act"*

The issue of threshold of significance has also been reviewed by the Environmental Protection Agency (EPA). The EPA analyzed several thresholds for reporting and rejected lower thresholds of 1,000 and 10,000 metric tons/yr finding that these thresholds would greatly increase the number of covered entities without capturing a significant portion of GHG emissions (EPA 2009). The 25,000 MT/yr threshold would capture 94% of GHG emissions from stationary sources in California (CAPCOA 2008, Page 44).

Given the volume of research and resources that have been expended to develop the CARB reporting and the Cap and Trade regulations and the Federal (EPA) GHG reporting rule, the City of Williams has determined that the 25,000 MT/yr threshold is an appropriate threshold of significance to the proposed project.

Pollutant	Construction Phase	Operational Phase (2022)	Operational Phase (2026)	Significance Threshold	Significant?
NOx	0.48	0.20	0.40	25	No
VOC	0.76	1.92	7.38	25	No
PM-10	0.13	0.42	1.68	25	No
PM-2.5	0.077	0.31	1.24	25	No
GHG (Mt/yr)	74	247	988	25,000	No

Use of an even growth development assumption would overstate the actual annual emissions. This is because emissions will decline in future years in response to more stringent stands for construction equipment and automobiles. Typically, emissions decline 2% to 5% annually. Therefore, annual emissions in 2026 will be 10% to 25% lower than the estimated presented in Table 5-1.

## SECTION 6: REFERENCES

CalEEMod (2020): California Emissions Estimator Model. Information available at:

<http://www.caleemod.com/>

CAPCOA (2008). CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to CEQA. January 2008.

CARB Title 17 Section 95812 (c)(1).

CCAPCD (2021): Colusa County Air Pollution Control District Rules and Regulations. Available at:

<https://www.countyofcolusa.org/836/Rules-and-Regulations>

EPA (2009) Federal Register 56272-73, October 30, 2009

## APPENDIX

### Calculation of Emissions from Construction and Operational Phases

## APPENDIX

### Calculation of Emissions from Construction and Operational Phases

Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Unit 3**

**Colusa County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	25.00	Dwelling Unit	4.00	45,000.00	72

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	56
<b>Climate Zone</b>	3			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas and Electric Company				
<b>CO2 Intensity (lb/MWhr)</b>	203.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Lot acreage is 1/5 of the total acreage (17.3 acres)

Construction Phase - Typical construction schedule for first year

Off-road Equipment - No demolition required

Off-road Equipment - Estimated equipment usage

Off-road Equipment - Estimated equipment usage

Off-road Equipment - Most construction will be using hand tools.

Off-road Equipment - Estimated equipment usage

Off-road Equipment -

Vehicle Trips - Trip length reflects the small size of the community

Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	18.00	22.00
tblConstructionPhase	NumDays	230.00	100.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	8.00	5.00
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	5.00	41.00
tblConstructionPhase	PhaseEndDate	10/14/2022	11/30/2022
tblConstructionPhase	PhaseEndDate	8/25/2022	8/1/2022
tblConstructionPhase	PhaseEndDate	9/20/2021	1/1/2022
tblConstructionPhase	PhaseEndDate	10/7/2021	3/7/2022
tblConstructionPhase	PhaseEndDate	9/20/2022	12/7/2022
tblConstructionPhase	PhaseEndDate	9/27/2021	2/28/2022
tblConstructionPhase	PhaseStartDate	9/21/2022	11/1/2022
tblConstructionPhase	PhaseStartDate	10/8/2021	3/15/2022
tblConstructionPhase	PhaseStartDate	8/24/2021	1/1/2022
tblConstructionPhase	PhaseStartDate	9/28/2021	3/1/2022
tblConstructionPhase	PhaseStartDate	8/26/2022	12/1/2022
tblConstructionPhase	PhaseStartDate	9/21/2021	1/1/2022
tblGrading	AcresOfGrading	1.88	8.00
tblGrading	AcresOfGrading	15.38	7.50
tblLandUse	LotAcreage	8.12	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00



Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblVehicleTrips	HO_TL	7.50	5.00
tblVehicleTrips	HS_TL	7.30	5.00
tblVehicleTrips	HW_TL	10.80	5.00

**2.0 Emissions Summary**

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Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
2	11-24-2021	2-23-2022	0.1935	0.1935
3	2-24-2022	5-23-2022	0.1745	0.1745
4	5-24-2022	8-23-2022	0.1459	0.1459
		Highest	0.1935	0.1935

**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	1.8204	0.0328	2.1220	3.5200e-003		0.2725	0.2725		0.2725	0.2725	25.8239	11.1334	36.9574	0.0241	2.0300e-003	38.1657
Energy	3.2400e-003	0.0277	0.0118	1.8000e-004		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003	0.0000	50.5129	50.5129	3.6000e-003	9.5000e-004	50.8859
Mobile	0.1009	0.1400	0.7594	1.5000e-003	0.1401	1.4700e-003	0.1416	0.0375	1.3800e-003	0.0388	0.0000	138.7561	138.7561	9.8100e-003	8.5400e-003	141.5463
Waste						0.0000	0.0000		0.0000	0.0000	5.2615	0.0000	5.2615	0.3110	0.0000	13.0352
Water						0.0000	0.0000		0.0000	0.0000	0.5168	1.1480	1.6648	0.0533	1.2800e-003	3.3765
<b>Total</b>	<b>1.9246</b>	<b>0.2004</b>	<b>2.8932</b>	<b>5.2000e-003</b>	<b>0.1401</b>	<b>0.2762</b>	<b>0.4163</b>	<b>0.0375</b>	<b>0.2761</b>	<b>0.3136</b>	<b>31.6022</b>	<b>201.5504</b>	<b>233.1527</b>	<b>0.4017</b>	<b>0.0128</b>	<b>247.0096</b>

Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	1.8204	0.0328	2.1220	3.5200e-003		0.2725	0.2725		0.2725	0.2725	25.8239	11.1334	36.9574	0.0241	2.0300e-003	38.1657
Energy	3.2400e-003	0.0277	0.0118	1.8000e-004		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003	0.0000	50.5129	50.5129	3.6000e-003	9.5000e-004	50.8859
Mobile	0.1009	0.1400	0.7594	1.5000e-003	0.1401	1.4700e-003	0.1416	0.0375	1.3800e-003	0.0388	0.0000	138.7561	138.7561	9.8100e-003	8.5400e-003	141.5463
Waste						0.0000	0.0000		0.0000	0.0000	5.2615	0.0000	5.2615	0.3110	0.0000	13.0352
Water						0.0000	0.0000		0.0000	0.0000	0.5168	1.1480	1.6648	0.0533	1.2800e-003	3.3765
<b>Total</b>	<b>1.9246</b>	<b>0.2004</b>	<b>2.8932</b>	<b>5.2000e-003</b>	<b>0.1401</b>	<b>0.2762</b>	<b>0.4163</b>	<b>0.0375</b>	<b>0.2761</b>	<b>0.3136</b>	<b>31.6022</b>	<b>201.5504</b>	<b>233.1527</b>	<b>0.4017</b>	<b>0.0128</b>	<b>247.0096</b>

	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
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**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	1/1/2022	1/1/2022	5	0	
2	Site Preparation	Site Preparation	1/1/2022	2/28/2022	5	41	
3	Grading	Grading	3/1/2022	3/7/2022	5	5	

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

4	Building Construction	Building Construction	3/15/2022	8/1/2022	5	100
5	Paving	Paving	12/1/2022	12/7/2022	5	5
6	Architectural Coating	Architectural Coating	11/1/2022	11/30/2022	5	22

**Acres of Grading (Site Preparation Phase): 7.5**

**Acres of Grading (Grading Phase): 8**

**Acres of Paving: 0**

**Residential Indoor: 91,125; Residential Outdoor: 30,375; 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
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	0	7.00	231	0.29
Demolition	Excavators	0	8.00	158	0.38
Grading	Excavators	0	8.00	158	0.38
Building Construction	Forklifts	2	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	6.00	187	0.41
Paving	Pavers	0	6.00	130	0.42
Paving	Paving Equipment	1	6.00	132	0.36
Paving	Rollers	1	6.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37





Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Demolition - 2022**

**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
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**3.3 Site Preparation - 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					
Fugitive Dust					0.0966	0.0000	0.0966	0.0513	0.0000	0.0513	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0179	0.1867	0.1239	2.3000e-004		9.1900e-003	9.1900e-003		8.4500e-003	8.4500e-003	0.0000	19.9388	19.9388	6.4500e-003	0.0000	20.1000
<b>Total</b>	<b>0.0179</b>	<b>0.1867</b>	<b>0.1239</b>	<b>2.3000e-004</b>	<b>0.0966</b>	<b>9.1900e-003</b>	<b>0.1058</b>	<b>0.0513</b>	<b>8.4500e-003</b>	<b>0.0598</b>	<b>0.0000</b>	<b>19.9388</b>	<b>19.9388</b>	<b>6.4500e-003</b>	<b>0.0000</b>	<b>20.1000</b>



Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 Site Preparation - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	3.8000e-004	4.2600e-003	1.0000e-005	1.3000e-003	1.0000e-005	1.3100e-003	3.5000e-004	1.0000e-005	3.5000e-004	0.0000	1.0663	1.0663	4.0000e-005	3.0000e-005	1.0770
<b>Total</b>	<b>5.4000e-004</b>	<b>3.8000e-004</b>	<b>4.2600e-003</b>	<b>1.0000e-005</b>	<b>1.3000e-003</b>	<b>1.0000e-005</b>	<b>1.3100e-003</b>	<b>3.5000e-004</b>	<b>1.0000e-005</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>1.0663</b>	<b>1.0663</b>	<b>4.0000e-005</b>	<b>3.0000e-005</b>	<b>1.0770</b>

**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					0.0966	0.0000	0.0966	0.0513	0.0000	0.0513	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0179	0.1867	0.1239	2.3000e-004		9.1900e-003	9.1900e-003		8.4500e-003	8.4500e-003	0.0000	19.9388	19.9388	6.4500e-003	0.0000	20.1000
<b>Total</b>	<b>0.0179</b>	<b>0.1867</b>	<b>0.1239</b>	<b>2.3000e-004</b>	<b>0.0966</b>	<b>9.1900e-003</b>	<b>0.1058</b>	<b>0.0513</b>	<b>8.4500e-003</b>	<b>0.0598</b>	<b>0.0000</b>	<b>19.9388</b>	<b>19.9388</b>	<b>6.4500e-003</b>	<b>0.0000</b>	<b>20.1000</b>

Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 Site Preparation - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	3.8000e-004	4.2600e-003	1.0000e-005	1.3000e-003	1.0000e-005	1.3100e-003	3.5000e-004	1.0000e-005	3.5000e-004	0.0000	1.0663	1.0663	4.0000e-005	3.0000e-005	1.0770
<b>Total</b>	<b>5.4000e-004</b>	<b>3.8000e-004</b>	<b>4.2600e-003</b>	<b>1.0000e-005</b>	<b>1.3000e-003</b>	<b>1.0000e-005</b>	<b>1.3100e-003</b>	<b>3.5000e-004</b>	<b>1.0000e-005</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>1.0663</b>	<b>1.0663</b>	<b>4.0000e-005</b>	<b>3.0000e-005</b>	<b>1.0770</b>

**3.4 Grading - 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					
Fugitive Dust					4.2400e-003	0.0000	4.2400e-003	4.6000e-004	0.0000	4.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8000e-004	9.8600e-003	3.2300e-003	1.0000e-005		3.1000e-004	3.1000e-004		2.9000e-004	2.9000e-004	0.0000	1.0908	1.0908	3.5000e-004	0.0000	1.0996
<b>Total</b>	<b>7.8000e-004</b>	<b>9.8600e-003</b>	<b>3.2300e-003</b>	<b>1.0000e-005</b>	<b>4.2400e-003</b>	<b>3.1000e-004</b>	<b>4.5500e-003</b>	<b>4.6000e-004</b>	<b>2.9000e-004</b>	<b>7.5000e-004</b>	<b>0.0000</b>	<b>1.0908</b>	<b>1.0908</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>1.0996</b>

Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 Grading - 2022**

**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	1.9000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0488	0.0488	0.0000	0.0000	0.0493
<b>Total</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>1.9000e-004</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0488</b>	<b>0.0488</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0493</b>

**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					4.2400e-003	0.0000	4.2400e-003	4.6000e-004	0.0000	4.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8000e-004	9.8600e-003	3.2300e-003	1.0000e-005		3.1000e-004	3.1000e-004		2.9000e-004	2.9000e-004	0.0000	1.0908	1.0908	3.5000e-004	0.0000	1.0996
<b>Total</b>	<b>7.8000e-004</b>	<b>9.8600e-003</b>	<b>3.2300e-003</b>	<b>1.0000e-005</b>	<b>4.2400e-003</b>	<b>3.1000e-004</b>	<b>4.5500e-003</b>	<b>4.6000e-004</b>	<b>2.9000e-004</b>	<b>7.5000e-004</b>	<b>0.0000</b>	<b>1.0908</b>	<b>1.0908</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>1.0996</b>

Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 Grading - 2022**

**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	1.9000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0488	0.0488	0.0000	0.0000	0.0493
<b>Total</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>1.9000e-004</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0488</b>	<b>0.0488</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0493</b>

**3.5 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	0.0279	0.2519	0.2992	4.8000e-004		0.0143	0.0143		0.0138	0.0138	0.0000	41.6895	41.6895	5.6900e-003	0.0000	41.8317
<b>Total</b>	<b>0.0279</b>	<b>0.2519</b>	<b>0.2992</b>	<b>4.8000e-004</b>		<b>0.0143</b>	<b>0.0143</b>		<b>0.0138</b>	<b>0.0138</b>	<b>0.0000</b>	<b>41.6895</b>	<b>41.6895</b>	<b>5.6900e-003</b>	<b>0.0000</b>	<b>41.8317</b>

Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 Building Construction - 2022**

**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	3.8000e-004	9.3800e-003	2.9000e-003	3.0000e-005	9.9000e-004	9.0000e-005	1.0800e-003	2.9000e-004	9.0000e-005	3.8000e-004	0.0000	3.1071	3.1071	2.0000e-005	4.5000e-004	3.2417
Worker	1.4700e-003	1.0500e-003	0.0117	3.0000e-005	3.5700e-003	2.0000e-005	3.5900e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	2.9259	2.9259	1.0000e-004	9.0000e-005	2.9553
<b>Total</b>	<b>1.8500e-003</b>	<b>0.0104</b>	<b>0.0146</b>	<b>6.0000e-005</b>	<b>4.5600e-003</b>	<b>1.1000e-004</b>	<b>4.6700e-003</b>	<b>1.2400e-003</b>	<b>1.1000e-004</b>	<b>1.3500e-003</b>	<b>0.0000</b>	<b>6.0330</b>	<b>6.0330</b>	<b>1.2000e-004</b>	<b>5.4000e-004</b>	<b>6.1970</b>

**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	0.0279	0.2519	0.2992	4.8000e-004		0.0143	0.0143		0.0138	0.0138	0.0000	41.6895	41.6895	5.6900e-003	0.0000	41.8316
<b>Total</b>	<b>0.0279</b>	<b>0.2519</b>	<b>0.2992</b>	<b>4.8000e-004</b>		<b>0.0143</b>	<b>0.0143</b>		<b>0.0138</b>	<b>0.0138</b>	<b>0.0000</b>	<b>41.6895</b>	<b>41.6895</b>	<b>5.6900e-003</b>	<b>0.0000</b>	<b>41.8316</b>

Unit 3 - Colusa County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 Building Construction - 2022**

**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	3.8000e-004	9.3800e-003	2.9000e-003	3.0000e-005	9.9000e-004	9.0000e-005	1.0800e-003	2.9000e-004	9.0000e-005	3.8000e-004	0.0000	3.1071	3.1071	2.0000e-005	4.5000e-004	3.2417
Worker	1.4700e-003	1.0500e-003	0.0117	3.0000e-005	3.5700e-003	2.0000e-005	3.5900e-003	9.5000e-004	2.0000e-005	9.7000e-004	0.0000	2.9259	2.9259	1.0000e-004	9.0000e-005	2.9553
<b>Total</b>	<b>1.8500e-003</b>	<b>0.0104</b>	<b>0.0146</b>	<b>6.0000e-005</b>	<b>4.5600e-003</b>	<b>1.1000e-004</b>	<b>4.6700e-003</b>	<b>1.2400e-003</b>	<b>1.1000e-004</b>	<b>1.3500e-003</b>	<b>0.0000</b>	<b>6.0330</b>	<b>6.0330</b>	<b>1.2000e-004</b>	<b>5.4000e-004</b>	<b>6.1970</b>

**3.6 Paving - 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	7.6000e-004	7.1800e-003	8.8400e-003	1.0000e-005		3.7000e-004	3.7000e-004		3.4000e-004	3.4000e-004	0.0000	1.1891	1.1891	3.7000e-004	0.0000	1.1983
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>7.6000e-004</b>	<b>7.1800e-003</b>	<b>8.8400e-003</b>	<b>1.0000e-005</b>		<b>3.7000e-004</b>	<b>3.7000e-004</b>		<b>3.4000e-004</b>	<b>3.4000e-004</b>	<b>0.0000</b>	<b>1.1891</b>	<b>1.1891</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>1.1983</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.6 Paving - 2022**

**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	7.0000e-005	5.0000e-005	5.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1300	0.1300	0.0000	0.0000	0.1314
<b>Total</b>	<b>7.0000e-005</b>	<b>5.0000e-005</b>	<b>5.2000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1300</b>	<b>0.1300</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1314</b>

**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	7.6000e-004	7.1800e-003	8.8400e-003	1.0000e-005		3.7000e-004	3.7000e-004		3.4000e-004	3.4000e-004	0.0000	1.1891	1.1891	3.7000e-004	0.0000	1.1983
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>7.6000e-004</b>	<b>7.1800e-003</b>	<b>8.8400e-003</b>	<b>1.0000e-005</b>		<b>3.7000e-004</b>	<b>3.7000e-004</b>		<b>3.4000e-004</b>	<b>3.4000e-004</b>	<b>0.0000</b>	<b>1.1891</b>	<b>1.1891</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>1.1983</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.6 Paving - 2022**

**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	7.0000e-005	5.0000e-005	5.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1300	0.1300	0.0000	0.0000	0.1314
<b>Total</b>	<b>7.0000e-005</b>	<b>5.0000e-005</b>	<b>5.2000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1300</b>	<b>0.1300</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1314</b>

**3.7 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	0.7039					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2500e-003	0.0155	0.0200	3.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	2.8086	2.8086	1.8000e-004	0.0000	2.8132
<b>Total</b>	<b>0.7062</b>	<b>0.0155</b>	<b>0.0200</b>	<b>3.0000e-005</b>		<b>9.0000e-004</b>	<b>9.0000e-004</b>		<b>9.0000e-004</b>	<b>9.0000e-004</b>	<b>0.0000</b>	<b>2.8086</b>	<b>2.8086</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>2.8132</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.7 Architectural Coating - 2022**

**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	7.0000e-005	5.0000e-005	5.7000e-004	0.0000	1.7000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1431	0.1431	0.0000	0.0000	0.1445
<b>Total</b>	<b>7.0000e-005</b>	<b>5.0000e-005</b>	<b>5.7000e-004</b>	<b>0.0000</b>	<b>1.7000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.1431</b>	<b>0.1431</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1445</b>

**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	0.7039					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2500e-003	0.0155	0.0200	3.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	2.8086	2.8086	1.8000e-004	0.0000	2.8132
<b>Total</b>	<b>0.7062</b>	<b>0.0155</b>	<b>0.0200</b>	<b>3.0000e-005</b>		<b>9.0000e-004</b>	<b>9.0000e-004</b>		<b>9.0000e-004</b>	<b>9.0000e-004</b>	<b>0.0000</b>	<b>2.8086</b>	<b>2.8086</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>2.8132</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.7 Architectural Coating - 2022**

**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	7.0000e-005	5.0000e-005	5.7000e-004	0.0000	1.7000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1431	0.1431	0.0000	0.0000	0.1445
<b>Total</b>	<b>7.0000e-005</b>	<b>5.0000e-005</b>	<b>5.7000e-004</b>	<b>0.0000</b>	<b>1.7000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.1431</b>	<b>0.1431</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1445</b>

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	0.1009	0.1400	0.7594	1.5000e-003	0.1401	1.4700e-003	0.1416	0.0375	1.3800e-003	0.0388	0.0000	138.7561	138.7561	9.8100e-003	8.5400e-003	141.5463
Unmitigated	0.1009	0.1400	0.7594	1.5000e-003	0.1401	1.4700e-003	0.1416	0.0375	1.3800e-003	0.0388	0.0000	138.7561	138.7561	9.8100e-003	8.5400e-003	141.5463

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	236.00	238.50	213.75	376,896	376,896
Total	236.00	238.50	213.75	376,896	376,896

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	5.00	5.00	5.00	42.30	19.60	38.10	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	0.504547	0.054459	0.176045	0.160764	0.039113	0.008816	0.007575	0.018693	0.000269	0.000186	0.025160	0.000750	0.003623

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	18.4445	18.4445	2.9800e-003	3.6000e-004	18.6269
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	18.4445	18.4445	2.9800e-003	3.6000e-004	18.6269
NaturalGas Mitigated	3.2400e-003	0.0277	0.0118	1.8000e-004		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003	0.0000	32.0684	32.0684	6.1000e-004	5.9000e-004	32.2590
NaturalGas Unmitigated	3.2400e-003	0.0277	0.0118	1.8000e-004		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003	0.0000	32.0684	32.0684	6.1000e-004	5.9000e-004	32.2590

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	600939	3.2400e-003	0.0277	0.0118	1.8000e-004		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003	0.0000	32.0684	32.0684	6.1000e-004	5.9000e-004	32.2590
<b>Total</b>		<b>3.2400e-003</b>	<b>0.0277</b>	<b>0.0118</b>	<b>1.8000e-004</b>		<b>2.2400e-003</b>	<b>2.2400e-003</b>		<b>2.2400e-003</b>	<b>2.2400e-003</b>	<b>0.0000</b>	<b>32.0684</b>	<b>32.0684</b>	<b>6.1000e-004</b>	<b>5.9000e-004</b>	<b>32.2590</b>

**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	600939	3.2400e-003	0.0277	0.0118	1.8000e-004		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003	0.0000	32.0684	32.0684	6.1000e-004	5.9000e-004	32.2590
<b>Total</b>		<b>3.2400e-003</b>	<b>0.0277</b>	<b>0.0118</b>	<b>1.8000e-004</b>		<b>2.2400e-003</b>	<b>2.2400e-003</b>		<b>2.2400e-003</b>	<b>2.2400e-003</b>	<b>0.0000</b>	<b>32.0684</b>	<b>32.0684</b>	<b>6.1000e-004</b>	<b>5.9000e-004</b>	<b>32.2590</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	199349	18.4445	2.9800e-003	3.6000e-004	18.6269
<b>Total</b>		<b>18.4445</b>	<b>2.9800e-003</b>	<b>3.6000e-004</b>	<b>18.6269</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	199349	18.4445	2.9800e-003	3.6000e-004	18.6269
<b>Total</b>		<b>18.4445</b>	<b>2.9800e-003</b>	<b>3.6000e-004</b>	<b>18.6269</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	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	1.8204	0.0328	2.1220	3.5200e-003		0.2725	0.2725		0.2725	0.2725	25.8239	11.1334	36.9574	0.0241	2.0300e-003	38.1657
Unmitigated	1.8204	0.0328	2.1220	3.5200e-003		0.2725	0.2725		0.2725	0.2725	25.8239	11.1334	36.9574	0.0241	2.0300e-003	38.1657

**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	0.0704					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1758					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5687	0.0306	1.9363	3.5100e-003		0.2715	0.2715		0.2715	0.2715	25.8239	10.8302	36.6541	0.0238	2.0300e-003	37.8552
Landscaping	5.5900e-003	2.1400e-003	0.1857	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3105
<b>Total</b>	<b>1.8204</b>	<b>0.0328</b>	<b>2.1220</b>	<b>3.5200e-003</b>		<b>0.2725</b>	<b>0.2725</b>		<b>0.2725</b>	<b>0.2725</b>	<b>25.8239</b>	<b>11.1334</b>	<b>36.9574</b>	<b>0.0241</b>	<b>2.0300e-003</b>	<b>38.1657</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0704					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1758					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5687	0.0306	1.9363	3.5100e-003		0.2715	0.2715		0.2715	0.2715	25.8239	10.8302	36.6541	0.0238	2.0300e-003	37.8552
Landscaping	5.5900e-003	2.1400e-003	0.1857	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3105
<b>Total</b>	<b>1.8204</b>	<b>0.0328</b>	<b>2.1220</b>	<b>3.5200e-003</b>		<b>0.2725</b>	<b>0.2725</b>		<b>0.2725</b>	<b>0.2725</b>	<b>25.8239</b>	<b>11.1334</b>	<b>36.9574</b>	<b>0.0241</b>	<b>2.0300e-003</b>	<b>38.1657</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.6648	0.0533	1.2800e-003	3.3765
Unmitigated	1.6648	0.0533	1.2800e-003	3.3765

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.62885 / 1.02688	1.6648	0.0533	1.2800e-003	3.3765
<b>Total</b>		<b>1.6648</b>	<b>0.0533</b>	<b>1.2800e-003</b>	<b>3.3765</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.2 Water by Land Use**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.62885 / 1.02688	1.6648	0.0533	1.2800e-003	3.3765
<b>Total</b>		<b>1.6648</b>	<b>0.0533</b>	<b>1.2800e-003</b>	<b>3.3765</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.2615	0.3110	0.0000	13.0352
Unmitigated	5.2615	0.3110	0.0000	13.0352

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	25.92	5.2615	0.3110	0.0000	13.0352
<b>Total</b>		<b>5.2615</b>	<b>0.3110</b>	<b>0.0000</b>	<b>13.0352</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	25.92	5.2615	0.3110	0.0000	13.0352
<b>Total</b>		<b>5.2615</b>	<b>0.3110</b>	<b>0.0000</b>	<b>13.0352</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**10.0 Stationary Equipment**

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**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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