



**MEMORANDUM**

To: Brianna Bohonok, Associate Principal, CirclePoint  
From: Ace Malisos, Air Quality and Noise Manager, Kimley-Horn  
Noemi Wyss AICP, Environmental Planner, Kimley-Horn  
Kimley-Horn and Associates, Inc.  
Date: October 4, 2022  
Subject: Alameda County Rail Safety Enhancement Program – Air Quality Analysis  
Berkeley ISMND

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**1.0 PURPOSE**

The purpose of this memorandum is to identify the air quality emissions associated with construction and operations of three at-grade rail crossings, located in the City of Berkeley in Alameda County, California. Crossings are existing and located in the western portion of Berkeley. This analysis has been undertaken to analyze whether the proposed project would result in any significant environmental impacts related to air quality.

**2.0 PROPOSED PROJECT DESCRIPTION**

The proposed project is located in the City of Berkeley in Alameda County, California. The project site consists of three existing at-grade rail crossings. The crossings are along Union Pacific Railroad (UPRR) tracks where UPRR tracks intersect with local streets. Each of the crossings are listed in **Table 1** below, from north to south. The Map ID number corresponds to crossing locations shown on **Figure 1**.

**Table 1: Crossing Locations**

Jurisdiction	Intersection	Map ID
Berkeley	Cedar Street	1
Berkeley	Addison Street	2
Berkeley	Bancroft Way	3

Source: Alameda CTC, 2021

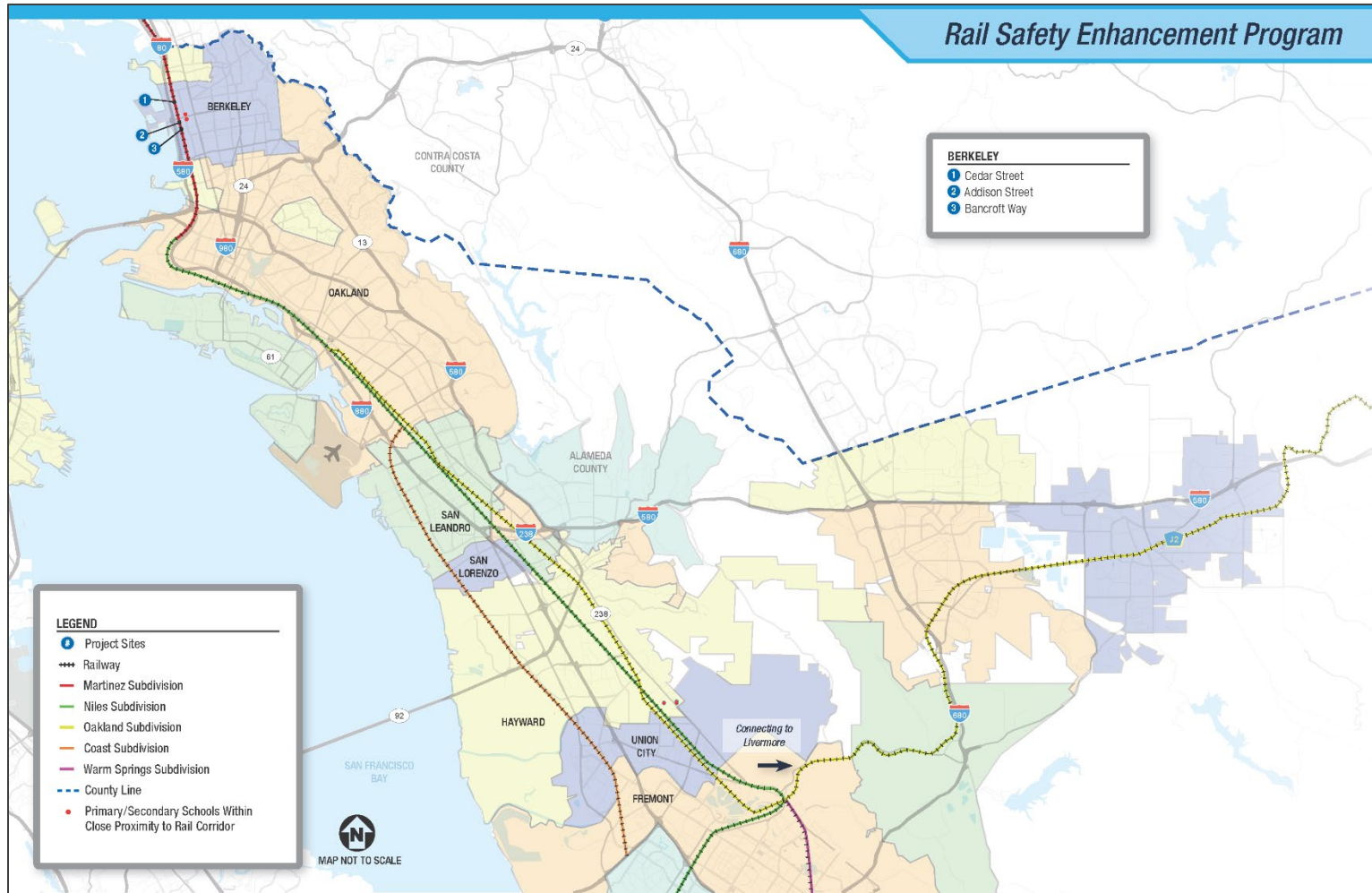


Figure 1: Project Site Map

The three crossings consist of entirely developed area. The project sites are predominantly impervious except for the gravel shoulder next to UPRR tracks. All three local streets are two-lane side streets with existing railroad gates (one in each direction) with lights and street painting at the crossing location. The existing conditions at each crossing location are described in detail in **Table 2**.

**Table 2: Existing Conditions**

Intersection	Description	Map ID
Cedar Street	Two-lane side street with paved median, sidewalks, and landscaping. Very little pervious surface except at landscaped areas and UPRR gravel shoulder. Single-arm gates in each direction of traffic.	1
Addison Street	Two-lane side street with paved median, sidewalks, and landscaping. Very little pervious surface except at landscaped areas and UPRR gravel shoulder. Single-arm gates in each direction of traffic.	2
Bancroft Way	Two-lane side street with paved median, sidewalks, and landscaping. Very little pervious surface except at landscaped areas and UPRR gravel shoulder. Single-arm gates in each direction of traffic.	3

Source: Circlepoint, 2021.

The project consists of rail safety improvements to existing at-grade rail crossings. The improvements are designed to increase safety for all motorists and pedestrians. This includes restricting access to UPRR tracks, improving signage, accessibility improvements, and other safety features. The proposed safety improvements at each crossing are listed in **Table 3**. In addition, these crossings will require the construction of new driveway access to adjacent parcels.

**Table 3: Proposed Safety Improvements**

Intersection	Description	Excavation/Grading	Map ID
Cedar Street	<ul style="list-style-type: none"> <li>Remove portions of existing pavement/concrete</li> <li>Install new roadway striping/pavement marking, roadside signs, curb and gutter, security access gates/fencing, pavement, ADA detectable pavers, vehicular gate and cantilever, and “No Trespassing” signs</li> <li>Add new driveway</li> </ul>	The project will require ground disturbing work, excavation, grading for creation of a new driveway.	1
Addison Street	<ul style="list-style-type: none"> <li>Remove portions of existing pavement/concrete</li> </ul>	The project will require ground disturbing work, excavation, grading for	2

Intersection	Description	Excavation/Grading	Map ID
	<ul style="list-style-type: none"> <li>Install new roadside signs, raised delineators, curb and gutter, security access gates/fencing, pavement, ADA detectable pavers, "No Trespassing" signs, and new sidewalk</li> <li>Add new driveway (portions of which are outside of existing City/UPRR ROW. A temporary construction easement will be required).</li> </ul>	creation of a new driveway.	
Bancroft Way	<ul style="list-style-type: none"> <li>Remove portions of existing pavement/concrete</li> <li>Install new roadway striping/pavement marking, roadside signs, raised medians, curb and gutter, security access gates/fencing, pavement, ADA detectable pavers, "No Trespassing" signs, and new sidewalk</li> <li>Add new driveway</li> </ul>	The project will require ground disturbing work, excavation, grading for creation of a new driveway.	3

Source: Alameda CTC, 2021

Construction of the project is anticipated to take approximately 12 months, beginning in in the third quarter of 2022 and concluding in 2023. For the purposes of this analysis, construction is assumed to begin in an earlier year as a conservative approach. Assuming an earlier year is conservative because a later construction year start date would result in lower emissions due to equipment fleet turnover and emission control regulations. Construction would occur in one phase with distinct activities/sub-phases (i.e., demolition, grading, paving). Emissions for each construction activity have been quantified based upon the phase duration and equipment types. Construction at each crossing will generally include:

- Temporary closure of the crossing with an appropriate detour for vehicles and cyclists
- Removal of outdated or non-functioning crossing control equipment, fencing, signage, pavement, and other materials
- Installation of new fencing, crossing control equipment, signage, sidewalks and pavement, and other safety features

The following crossings have unique elements or requirements for their construction:

- Cedar Street: Construct new driveway and install new fencing at new driveway location on southwest side of intersection for aggregate distribution site.
- Addison Street: Construct new driveway further west on Addison Street, remove on-street parking and construct gate and curb and gutter in new location on southwest side of intersection for Pacific West Chemical.

- Bancroft Way: Construct new driveway and install new fencing at new driveway location further west on Bancroft Way on northwest side of intersection for aggregate distribution site.

**3.0 THRESHOLDS AND SIGNIFICANCE CRITERIA**

Under the California Environmental Quality Act (CEQA), the Bay Area Air Quality Management District (BAAQMD) is an expert commenting agency on air quality within its jurisdiction or impacting its jurisdiction. Under the Federal Clean Air Act (FCAA), the BAAQMD has adopted Federal attainment plans for O<sub>3</sub> and PM<sub>2.5</sub>. The BAAQMD reviews projects to ensure that they would not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any Federal attainment plan.

The BAAQMD Options and Justification Report (dated October 2009) establishes thresholds based on substantial evidence, and the thresholds are consistent with the thresholds outlined within the 2010/2011 BAAQMD CEQA Air Quality Guidelines (and current 2017 CEQA Air Quality Guidelines). The thresholds have been developed by the BAAQMD in order to attain State and Federal ambient air quality standards. Therefore, projects below these thresholds would not violate an air quality standard and would not contribute substantially to an existing or projected air quality violation.

The BAAQMD’s CEQA Air Quality Guidelines provides significance thresholds for both construction and operation of projects. Ultimately the lead agency determines the thresholds of significance for impacts. However, if a project proposes development in excess of the established thresholds, as outlined in **Table 4**, a significant air quality impact may occur and additional analysis is warranted to fully assess the significance of impacts.

**Table 4: Bay Area Air Quality Management District Emissions Thresholds**

Criteria Air Pollutants and Precursors (Regional)	Construction-Related	Operational-Related	
	Average Daily Emissions (pounds/day)	Average Daily Emission (pounds/day)	Annual Average Emission (tons/year)
Reactive Organic Gases (ROG)	54	54	10
Nitrogen Oxides (NO <sub>x</sub> )	54	54	10
Coarse Particulates (PM <sub>10</sub> )	82 (exhaust)	82	15
Fine Particulates (PM <sub>2.5</sub> )	54 (exhaust)	54	10
PM <sub>10</sub> / PM <sub>2.5</sub> (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average) 20.0 ppm (1-hour average)	

Source: Bay Area Air Quality Management District, 2017 CEQA Air Quality Guidelines, 2017.

The project is located in the San Francisco Bay Area Air Basin (Basin) which includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma County, and the southwestern portion of Solano County.

#### 4.0 IMPACT ANALYSIS

##### 4.1 Construction

Project construction activities would generate short-term emissions of criteria air pollutants. The criteria pollutants of primary concern within the project area include ozone-precursor pollutants (i.e., reactive organic gases [ROG] and nitrogen oxides [NO<sub>x</sub>]) and particulate matter 10 microns in size or less (PM<sub>10</sub>) and particulate matter 2.5 microns in size or less (PM<sub>2.5</sub>). Construction-generated emissions are short term and temporary, lasting only while construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the BAAQMD's thresholds of significance.

Construction results in the temporary generation of emissions during demolition, site preparation, site grading, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities, as well as weather conditions and the appropriate application of water.

The duration of construction activities associated with the project are estimated to last approximately 12 months. The project's construction-related emissions were calculated using the BAAQMD-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. Project site demolition is anticipated to begin in the third quarter of 2022. Grading would occur in the first quarter of 2023 and construction and paving would occur starting in the second quarter of 2023 and continue until project completion in the third quarter of 2023.

The exact construction timeline is unknown; however, to be conservative, the earliest feasible dates were utilized in the modeling. This approach is conservative given that emissions factors decrease in future years due to regulatory and technological improvements and fleet turnover. See [Appendix A: Air Quality Data](#) for additional information regarding the construction assumptions used in this analysis. **Table 5** displays the maximum daily emissions in pounds per day that are expected to be generated from the construction of the proposed project in comparison to the daily thresholds established by the BAAQMD.

**Table 5: Construction-Related Emissions**

Year	Pollutant (maximum pounds per day) <sup>1</sup>					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO <sub>x</sub> )	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM <sub>10</sub> )	Fine Particulate Matter (PM <sub>2.5</sub> )	Coarse Particulate Matter (PM <sub>10</sub> )	Fine Particulate Matter (PM <sub>2.5</sub> )
2022	1.45	12.08	12.74	0.02	0.27	0.61
2023	1.69	14.09	19.60	0.03	1.15	0.70
BAAQMD Significance Threshold <sup>2,3</sup>	54	54	82	54	BMPs	BMPs
Exceed BAAQMD Threshold?	No	No	No	No	N/A	N/A

1. Emissions were calculated using CalEEMod. Mitigated emissions include compliance with the BAAQMD’s Basic Construction Mitigation Measures Recommended for All Projects. These measures include the following: water exposed surfaces two times daily; cover haul trucks; clean track outs with wet powered vacuum street sweepers; limit speeds on unpaved roads to 15 miles per hour; complete paving as soon as possible after grading; limit idle times to 5 minutes; properly maintain mobile and other construction equipment; and post a publicly visible sign with contact information to register dust complaints and take corrective action within 48 hours.

Emission quantities in this table are the sum of all emissions generated by the construction of all three project locations throughout Alameda County for each year.

2. Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, updated May 2017.

3. BMPs = Best Management Practices. The BAAQMD recommends the implementation of all Basic Construction Mitigation Measures, whether or not construction-related emissions exceed applicable significance thresholds. Implementation of Basic Construction Mitigation measures are considered to mitigate fugitive dust emissions to be less than significant.

Source: Refer to the CalEEMod outputs provided in Appendix A, *Air Quality Modeling Data*.

As shown in **Table 5**, construction of the project would not cause exceedances for ROG, NO<sub>x</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub>. The calculated emission results for ROG, NO<sub>x</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub> from CalEEMod demonstrate that the construction of this project would not exceed maximum daily thresholds created by the BAAQMD. The proposed project emissions would not worsen ambient air quality, create additional violations of federal and state standards, or delay the Basin’s goal for meeting attainment standards. Construction impacts would be less than significant.

**4.2 Operations**

During operation, the improved crossings would function similar to the existing conditions. Vehicular traffic and pedestrians would be able to use the crossings as they do under existing conditions, but with improved safety. Operation of the project would not change the frequency or speed of existing trains along UPRR tracks or effect the volume of vehicles using the crossing. Since no change in vehicle or train trips and no new vehicle trips are generated by the project there would be no impact to air quality as a result of project operation.

### 4.3 Cumulative Emissions

The Basin is designated nonattainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> for State standards and nonattainment for O<sub>3</sub> and PM<sub>2.5</sub> for Federal standards. As discussed above, the project's construction-related and emissions would not have the potential to exceed the BAAQMD significance thresholds for criteria pollutants and the project's operational emissions would not change from those of the existing conditions.

Cumulative Construction Impacts. Since the BAAQMD's thresholds indicate whether an individual project's emissions have the potential to affect cumulative regional air quality, it can be expected that the project-related construction emissions would not be cumulatively considerable since they would not exceed the thresholds. The BAAQMD recommends Basic Construction Mitigation Measures for all projects whether or not construction-related emissions exceed the thresholds of significance. Compliance with BAAQMD construction-related mitigation requirements are considered to reduce cumulative impacts at a Basin-wide level. As a result, construction emissions associated with the project would not result in a cumulatively considerable contribution to significant cumulative air quality impacts.

Cumulative Operational Impacts. The BAAQMD has not established separate significance thresholds for cumulative operational emissions. The nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. The BAAQMD developed the operational thresholds of significance based on the level above which a project's individual emissions would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. Since the project would not result in an increase in operational emissions compared to the existing conditions the project would not cause an increase in the cumulative operational emissions in the Basin.

As shown in **Table 5**, the project's construction emissions would not exceed BAAQMD thresholds. Project operational emissions would not exceed those generated by the existing crossings. As a result, air quality emissions associated with the project would not result in a cumulatively considerable contribution to significant cumulative air quality impacts.



## 5.0 References

1. Bay Area Air Quality Management District (BAAQMD), *Planning Healthy Places*, 2016.
2. Bay Area Air Quality Management District (BAAQMD), *2017 CEQA Air Quality Guidelines*, 2017.
3. Bay Area Air Quality Management District (BAAQMD), *Air Quality Standards and Attainment Status*, 2017.
4. Bay Area Air Quality Management District (BAAQMD), *Clean Air Plan*, 2017.
5. Bay Area Air Quality Management District (BAAQMD), *Current Rules*, 2017.
6. Bay Area Air Quality Management District (BAAQMD), *Final 2017 Clean Air Plan*, 2017.
7. California Air Pollution Control Officers Association (CAPCOA), *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, 2008.
8. California Air Pollution Control Officers Association (CAPCOA). *CalEEMod User's Guide*. 2016.
9. California Air Pollution Control Officers Association (CAPCOA), *Health Effects*, 2018.
10. California Air Resources Board (CARB), *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, 2000.
11. California Air Resources Board (CARB), *Air Quality and Land Use Handbook: A Community Health Perspective*, 2005.
12. California Air Resources Board (CARB), *Current Air Quality Standards*, 2016.
13. United States Environmental Protection Agency (U.S. EPA), *Nonattainment Areas for Criteria Pollutants*, 2018.

## **Appendix A**

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### **Air Quality Modeling Data**

Alameda CTC Rail Crossings Improvements - Alameda County, Summer

**Alameda CTC Rail Crossings Improvements**  
**Alameda County, Summer**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	30.50	1000sqft	0.70	30,500.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	63
<b>Climate Zone</b>	5	<b>Operational Year</b>	2023		
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MWhr)</b>	641.35	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

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

- Project Characteristics -
- Land Use -
- Construction Phase - Anticipated schedule for construction
- Off-road Equipment - Minimal equipment required for rail crossing improvement installation
- Off-road Equipment - Minimal construction equipment required for demo.
- Off-road Equipment - Minimal equipment required for grading
- Off-road Equipment - Anticipated equipment for paving.
- Demolition - 200 cy of pavement approximately 400 tons
- Grading -

Construction Off-road Equipment Mitigation - BAAQMD basic control measures

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	40.00
tblConstructionPhase	NumDays	10.00	87.00
tblConstructionPhase	NumDays	2.00	100.00
tblConstructionPhase	NumDays	5.00	35.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### 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	lb/day										lb/day					
2022	0.4814	4.0215	4.2536	8.0700e-003	0.1475	0.2029	0.3504	0.0280	0.1987	0.2267	0.0000	773.0027	773.0027	0.0684	0.0000	774.7129
2023	0.5605	4.6923	6.5467	0.0106	0.8185	0.2326	1.0441	0.4312	0.2179	0.6491	0.0000	1,030.8156	1,030.8156	0.2916	0.0000	1,033.3618
<b>Maximum</b>	<b>0.5605</b>	<b>4.6923</b>	<b>6.5467</b>	<b>0.0106</b>	<b>0.8185</b>	<b>0.2326</b>	<b>1.0441</b>	<b>0.4312</b>	<b>0.2179</b>	<b>0.6491</b>	<b>0.0000</b>	<b>1,030.8156</b>	<b>1,030.8156</b>	<b>0.2916</b>	<b>0.0000</b>	<b>1,033.3618</b>

**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	lb/day										lb/day					
2022	0.4814	4.0215	4.2536	8.0700e-003	0.0887	0.2029	0.2916	0.0189	0.1987	0.2176	0.0000	773.0027	773.0027	0.0684	0.0000	774.7129
2023	0.5605	4.6923	6.5467	0.0106	0.3841	0.2326	0.6098	0.1935	0.2179	0.4113	0.0000	1,030.8156	1,030.8156	0.2916	0.0000	1,033.3618
<b>Maximum</b>	<b>0.5605</b>	<b>4.6923</b>	<b>6.5467</b>	<b>0.0106</b>	<b>0.3841</b>	<b>0.2326</b>	<b>0.6098</b>	<b>0.1935</b>	<b>0.2179</b>	<b>0.4113</b>	<b>0.0000</b>	<b>1,030.8156</b>	<b>1,030.8156</b>	<b>0.2916</b>	<b>0.0000</b>	<b>1,033.3618</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>51.06</b>	<b>0.00</b>	<b>35.37</b>	<b>53.76</b>	<b>0.00</b>	<b>28.19</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>

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0146	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.6800e-003	6.6800e-003	2.0000e-005	0.0000	7.1100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	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>0.0146</b>	<b>3.0000e-005</b>	<b>3.1100e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>6.6800e-003</b>	<b>6.6800e-003</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>7.1100e-003</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0146	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.6800e-003	6.6800e-003	2.0000e-005		7.1100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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>0.0146</b>	<b>3.0000e-005</b>	<b>3.1100e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>6.6800e-003</b>	<b>6.6800e-003</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>7.1100e-003</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
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	Demolition	Demolition	9/1/2022	12/31/2022	5	87	
2	Grading	Grading	1/1/2023	5/19/2023	5	100	
3	Building Construction	Building Construction	5/20/2023	7/14/2023	5	40	
4	Paving	Paving	7/15/2023	9/1/2023	5	35	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0.7**

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

**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	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

**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	2	5.00	0.00	40.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	13.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

### 3.2 Demolition - 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	lb/day										lb/day					
Fugitive Dust					0.0984	0.0000	0.0984	0.0149	0.0000	0.0149			0.0000			0.0000
Off-Road	0.4623	3.9004	4.1124	7.3200e-003		0.2023	0.2023		0.1982	0.1982		696.0441	696.0441	0.0658		697.6882
<b>Total</b>	<b>0.4623</b>	<b>3.9004</b>	<b>4.1124</b>	<b>7.3200e-003</b>	<b>0.0984</b>	<b>0.2023</b>	<b>0.3007</b>	<b>0.0149</b>	<b>0.1982</b>	<b>0.2131</b>		<b>696.0441</b>	<b>696.0441</b>	<b>0.0658</b>		<b>697.6882</b>

#### 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	lb/day										lb/day					
Hauling	3.4300e-003	0.1121	0.0217	3.6000e-004	8.0500e-003	3.2000e-004	8.3700e-003	2.2100e-003	3.1000e-004	2.5100e-003		38.1101	38.1101	1.7900e-003		38.1548
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
Worker	0.0157	8.9900e-003	0.1196	3.9000e-004	0.0411	2.6000e-004	0.0413	0.0109	2.4000e-004	0.0111		38.8485	38.8485	8.6000e-004		38.8700
<b>Total</b>	<b>0.0191</b>	<b>0.1211</b>	<b>0.1412</b>	<b>7.5000e-004</b>	<b>0.0491</b>	<b>5.8000e-004</b>	<b>0.0497</b>	<b>0.0131</b>	<b>5.5000e-004</b>	<b>0.0136</b>		<b>76.9586</b>	<b>76.9586</b>	<b>2.6500e-003</b>		<b>77.0248</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	lb/day										lb/day					
Fugitive Dust					0.0421	0.0000	0.0421	6.3700e-003	0.0000	6.3700e-003			0.0000			0.0000
Off-Road	0.4623	3.9004	4.1124	7.3200e-003		0.2023	0.2023		0.1982	0.1982	0.0000	696.0441	696.0441	0.0658		697.6882
<b>Total</b>	<b>0.4623</b>	<b>3.9004</b>	<b>4.1124</b>	<b>7.3200e-003</b>	<b>0.0421</b>	<b>0.2023</b>	<b>0.2444</b>	<b>6.3700e-003</b>	<b>0.1982</b>	<b>0.2045</b>	<b>0.0000</b>	<b>696.0441</b>	<b>696.0441</b>	<b>0.0658</b>		<b>697.6882</b>

**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	lb/day										lb/day					
Hauling	3.4300e-003	0.1121	0.0217	3.6000e-004	7.6900e-003	3.2000e-004	8.0100e-003	2.1200e-003	3.1000e-004	2.4300e-003		38.1101	38.1101	1.7900e-003		38.1548
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
Worker	0.0157	8.9900e-003	0.1196	3.9000e-004	0.0389	2.6000e-004	0.0392	0.0104	2.4000e-004	0.0106		38.8485	38.8485	8.6000e-004		38.8700
<b>Total</b>	<b>0.0191</b>	<b>0.1211</b>	<b>0.1412</b>	<b>7.5000e-004</b>	<b>0.0466</b>	<b>5.8000e-004</b>	<b>0.0472</b>	<b>0.0125</b>	<b>5.5000e-004</b>	<b>0.0130</b>		<b>76.9586</b>	<b>76.9586</b>	<b>2.6500e-003</b>		<b>77.0248</b>

**3.3 Grading - 2023**

**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	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.5328	4.6269	5.7191	9.6600e-003		0.2253	0.2253		0.2175	0.2175		922.2231	922.2231	0.1358		925.6178
<b>Total</b>	<b>0.5328</b>	<b>4.6269</b>	<b>5.7191</b>	<b>9.6600e-003</b>	<b>0.7528</b>	<b>0.2253</b>	<b>0.9780</b>	<b>0.4138</b>	<b>0.2175</b>	<b>0.6313</b>		<b>922.2231</b>	<b>922.2231</b>	<b>0.1358</b>		<b>925.6178</b>

**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	lb/day										lb/day					
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
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
Worker	0.0233	0.0129	0.1757	6.0000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178		59.7788	59.7788	1.2300e-003		59.8095
<b>Total</b>	<b>0.0233</b>	<b>0.0129</b>	<b>0.1757</b>	<b>6.0000e-004</b>	<b>0.0657</b>	<b>4.0000e-004</b>	<b>0.0661</b>	<b>0.0174</b>	<b>3.7000e-004</b>	<b>0.0178</b>		<b>59.7788</b>	<b>59.7788</b>	<b>1.2300e-003</b>		<b>59.8095</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	lb/day										lb/day					
Fugitive Dust					0.3218	0.0000	0.3218	0.1769	0.0000	0.1769			0.0000			0.0000

Off-Road	0.5328	4.6269	5.7191	9.6600e-003		0.2253	0.2253		0.2175	0.2175	0.0000	922.2231	922.2231	0.1358		925.6178
<b>Total</b>	<b>0.5328</b>	<b>4.6269</b>	<b>5.7191</b>	<b>9.6600e-003</b>	<b>0.3218</b>	<b>0.2253</b>	<b>0.5471</b>	<b>0.1769</b>	<b>0.2175</b>	<b>0.3944</b>	<b>0.0000</b>	<b>922.2231</b>	<b>922.2231</b>	<b>0.1358</b>		<b>925.6178</b>

**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	lb/day										lb/day					
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
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
Worker	0.0233	0.0129	0.1757	6.0000e-004	0.0623	4.0000e-004	0.0627	0.0166	3.7000e-004	0.0170		59.7788	59.7788	1.2300e-003		59.8095
<b>Total</b>	<b>0.0233</b>	<b>0.0129</b>	<b>0.1757</b>	<b>6.0000e-004</b>	<b>0.0623</b>	<b>4.0000e-004</b>	<b>0.0627</b>	<b>0.0166</b>	<b>3.7000e-004</b>	<b>0.0170</b>		<b>59.7788</b>	<b>59.7788</b>	<b>1.2300e-003</b>		<b>59.8095</b>

**3.4 Building Construction - 2023**

**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	lb/day										lb/day					
Off-Road	0.3988	3.4489	5.0428	8.3300e-003		0.1575	0.1575		0.1552	0.1552		793.1519	793.1519	0.0940		795.5030
<b>Total</b>	<b>0.3988</b>	<b>3.4489</b>	<b>5.0428</b>	<b>8.3300e-003</b>		<b>0.1575</b>	<b>0.1575</b>		<b>0.1552</b>	<b>0.1552</b>		<b>793.1519</b>	<b>793.1519</b>	<b>0.0940</b>		<b>795.5030</b>

**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	lb/day										lb/day						
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
Vendor	0.0104	0.3905	0.0868	1.3300e-003	0.0339	4.1000e-004	0.0343	9.7600e-003	3.9000e-004	0.0102		140.5232	140.5232	5.8000e-003			140.6683
Worker	0.0379	0.0210	0.2855	9.7000e-004	0.1068	6.6000e-004	0.1075	0.0283	6.1000e-004	0.0289		97.1405	97.1405	2.0000e-003			97.1905
<b>Total</b>	<b>0.0483</b>	<b>0.4115</b>	<b>0.3723</b>	<b>2.3000e-003</b>	<b>0.1407</b>	<b>1.0700e-003</b>	<b>0.1417</b>	<b>0.0381</b>	<b>1.0000e-003</b>	<b>0.0391</b>		<b>237.6637</b>	<b>237.6637</b>	<b>7.8000e-003</b>			<b>237.8588</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	lb/day										lb/day						
Off-Road	0.3988	3.4489	5.0428	8.3300e-003		0.1575	0.1575		0.1552	0.1552	0.0000	793.1519	793.1519	0.0940			795.5030
<b>Total</b>	<b>0.3988</b>	<b>3.4489</b>	<b>5.0428</b>	<b>8.3300e-003</b>		<b>0.1575</b>	<b>0.1575</b>		<b>0.1552</b>	<b>0.1552</b>	<b>0.0000</b>	<b>793.1519</b>	<b>793.1519</b>	<b>0.0940</b>			<b>795.5030</b>

**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
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Worker	0.0292	0.0161	0.2196	7.5000e-004	0.0822	5.1000e-004	0.0827	0.0218	4.7000e-004	0.0223		74.7234	74.7234	1.5400e-003		74.7619
<b>Total</b>	<b>0.0292</b>	<b>0.0161</b>	<b>0.2196</b>	<b>7.5000e-004</b>	<b>0.0822</b>	<b>5.1000e-004</b>	<b>0.0827</b>	<b>0.0218</b>	<b>4.7000e-004</b>	<b>0.0223</b>		<b>74.7234</b>	<b>74.7234</b>	<b>1.5400e-003</b>		<b>74.7619</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	lb/day										lb/day					
Off-Road	0.4790	4.6762	6.3271	9.6700e-003		0.2321	0.2321		0.2144	0.2144	0.0000	922.4261	922.4261	0.2900		929.6763
Paving	0.0524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.5314</b>	<b>4.6762</b>	<b>6.3271</b>	<b>9.6700e-003</b>		<b>0.2321</b>	<b>0.2321</b>		<b>0.2144</b>	<b>0.2144</b>	<b>0.0000</b>	<b>922.4261</b>	<b>922.4261</b>	<b>0.2900</b>		<b>929.6763</b>

**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	lb/day										lb/day					
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
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
Worker	0.0292	0.0161	0.2196	7.5000e-004	0.0779	5.1000e-004	0.0784	0.0207	4.7000e-004	0.0212		74.7234	74.7234	1.5400e-003		74.7619
<b>Total</b>	<b>0.0292</b>	<b>0.0161</b>	<b>0.2196</b>	<b>7.5000e-004</b>	<b>0.0779</b>	<b>5.1000e-004</b>	<b>0.0784</b>	<b>0.0207</b>	<b>4.7000e-004</b>	<b>0.0212</b>		<b>74.7234</b>	<b>74.7234</b>	<b>1.5400e-003</b>		<b>74.7619</b>

**4.0 Operational Detail - Mobile**

#### 4.1 Mitigation Measures Mobile

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

#### 4.2 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		
Total	0.00	0.00	0.00		

#### 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-	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

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.561348	0.038614	0.190285	0.107199	0.015389	0.005180	0.024554	0.046236	0.002209	0.002456	0.005491	0.000334	0.000704

#### 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

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

## 5.2 Energy by Land Use - NaturalGas Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
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
<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>

## Mitigated



	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
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
<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>

## 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	lb/day										lb/day					
Mitigated	0.0146	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.6800e-003	6.6800e-003	2.0000e-005		7.1100e-003
Unmitigated	0.0146	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.6800e-003	6.6800e-003	2.0000e-005		7.1100e-003

### 6.2 Area by SubCategory

#### Unmitigated

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

Architectural Coating	3.4900e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0108					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005			6.6800e-003	6.6800e-003	2.0000e-005	7.1100e-003
<b>Total</b>	<b>0.0146</b>	<b>3.0000e-005</b>	<b>3.1100e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>			<b>6.6800e-003</b>	<b>6.6800e-003</b>	<b>2.0000e-005</b>	<b>7.1100e-003</b>

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.4900e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0108					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005			6.6800e-003	6.6800e-003	2.0000e-005	7.1100e-003
<b>Total</b>	<b>0.0146</b>	<b>3.0000e-005</b>	<b>3.1100e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>			<b>6.6800e-003</b>	<b>6.6800e-003</b>	<b>2.0000e-005</b>	<b>7.1100e-003</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

**8.0 Waste Detail**

**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## 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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Alameda CTC Rail Crossings Improvements - Alameda County, Winter

**Alameda CTC Rail Crossings Improvements**  
**Alameda County, Winter**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	30.50	1000sqft	0.70	30,500.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	63
<b>Climate Zone</b>	5			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MWhr)</b>	641.35	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

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

- Project Characteristics -
- Land Use -
- Construction Phase - Anticipated schedule for construction
- Off-road Equipment - Minimal equipment required for rail crossing improvement installation
- Off-road Equipment - Minimal construction equipment required for demo.
- Off-road Equipment - Minimal equipment required for grading
- Off-road Equipment - Anticipated equipment for paving.
- Demolition - 200 cy of pavement approximately 400 tons
- Grading -

Construction Off-road Equipment Mitigation - BAAQMD basic control measures

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	40.00
tblConstructionPhase	NumDays	10.00	87.00
tblConstructionPhase	NumDays	2.00	100.00
tblConstructionPhase	NumDays	5.00	35.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### 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	lb/day										lb/day					
2022	0.4823	4.0260	4.2479	8.0300e-003	0.1475	0.2029	0.3504	0.0280	0.1987	0.2267	0.0000	769.1925	769.1925	0.0685	0.0000	770.9045
2023	0.5619	4.6962	6.5320	0.0105	0.8185	0.2326	1.0441	0.4312	0.2179	0.6491	0.0000	1,019.2244	1,019.2244	0.2914	0.0000	1,021.7810
<b>Maximum</b>	<b>0.5619</b>	<b>4.6962</b>	<b>6.5320</b>	<b>0.0105</b>	<b>0.8185</b>	<b>0.2326</b>	<b>1.0441</b>	<b>0.4312</b>	<b>0.2179</b>	<b>0.6491</b>	<b>0.0000</b>	<b>1,019.2244</b>	<b>1,019.2244</b>	<b>0.2914</b>	<b>0.0000</b>	<b>1,021.7810</b>

**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	lb/day										lb/day					
2022	0.4823	4.0260	4.2479	8.0300e-003	0.0887	0.2029	0.2916	0.0189	0.1987	0.2176	0.0000	769.1925	769.1925	0.0685	0.0000	770.9045
2023	0.5619	4.6962	6.5320	0.0105	0.3841	0.2326	0.6098	0.1935	0.2179	0.4113	0.0000	1,019.2244	1,019.2244	0.2914	0.0000	1,021.7810
<b>Maximum</b>	<b>0.5619</b>	<b>4.6962</b>	<b>6.5320</b>	<b>0.0105</b>	<b>0.3841</b>	<b>0.2326</b>	<b>0.6098</b>	<b>0.1935</b>	<b>0.2179</b>	<b>0.4113</b>	<b>0.0000</b>	<b>1,019.2244</b>	<b>1,019.2244</b>	<b>0.2914</b>	<b>0.0000</b>	<b>1,021.7810</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>51.06</b>	<b>0.00</b>	<b>35.37</b>	<b>53.76</b>	<b>0.00</b>	<b>28.19</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>

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0146	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.6800e-003	6.6800e-003	2.0000e-005		7.1100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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>0.0146</b>	<b>3.0000e-005</b>	<b>3.1100e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>6.6800e-003</b>	<b>6.6800e-003</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>7.1100e-003</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0146	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.6800e-003	6.6800e-003	2.0000e-005		7.1100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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>0.0146</b>	<b>3.0000e-005</b>	<b>3.1100e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>6.6800e-003</b>	<b>6.6800e-003</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>7.1100e-003</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
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	Demolition	Demolition	9/1/2022	12/31/2022	5	87	
2	Grading	Grading	1/1/2023	5/19/2023	5	100	
3	Building Construction	Building Construction	5/20/2023	7/14/2023	5	40	
4	Paving	Paving	7/15/2023	9/1/2023	5	35	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0.7**

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

**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	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

**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	2	5.00	0.00	40.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	13.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Replace Ground Cover



Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

### 3.2 Demolition - 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	lb/day										lb/day					
Fugitive Dust					0.0984	0.0000	0.0984	0.0149	0.0000	0.0149			0.0000			0.0000
Off-Road	0.4623	3.9004	4.1124	7.3200e-003		0.2023	0.2023		0.1982	0.1982		696.0441	696.0441	0.0658		697.6882
<b>Total</b>	<b>0.4623</b>	<b>3.9004</b>	<b>4.1124</b>	<b>7.3200e-003</b>	<b>0.0984</b>	<b>0.2023</b>	<b>0.3007</b>	<b>0.0149</b>	<b>0.1982</b>	<b>0.2131</b>		<b>696.0441</b>	<b>696.0441</b>	<b>0.0658</b>		<b>697.6882</b>

#### 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	lb/day										lb/day					
Hauling	3.5300e-003	0.1145	0.0235	3.5000e-004	8.0500e-003	3.3000e-004	8.3800e-003	2.2100e-003	3.1000e-004	2.5200e-003		37.3984	37.3984	1.9200e-003		37.4463
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
Worker	0.0164	0.0112	0.1120	3.6000e-004	0.0411	2.6000e-004	0.0413	0.0109	2.4000e-004	0.0111		35.7501	35.7501	8.0000e-004		35.7701
<b>Total</b>	<b>0.0199</b>	<b>0.1257</b>	<b>0.1355</b>	<b>7.1000e-004</b>	<b>0.0491</b>	<b>5.9000e-004</b>	<b>0.0497</b>	<b>0.0131</b>	<b>5.5000e-004</b>	<b>0.0137</b>		<b>73.1484</b>	<b>73.1484</b>	<b>2.7200e-003</b>		<b>73.2164</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	lb/day										lb/day					
Fugitive Dust					0.0421	0.0000	0.0421	6.3700e-003	0.0000	6.3700e-003			0.0000			0.0000
Off-Road	0.4623	3.9004	4.1124	7.3200e-003		0.2023	0.2023		0.1982	0.1982	0.0000	696.0441	696.0441	0.0658		697.6882
<b>Total</b>	<b>0.4623</b>	<b>3.9004</b>	<b>4.1124</b>	<b>7.3200e-003</b>	<b>0.0421</b>	<b>0.2023</b>	<b>0.2444</b>	<b>6.3700e-003</b>	<b>0.1982</b>	<b>0.2045</b>	<b>0.0000</b>	<b>696.0441</b>	<b>696.0441</b>	<b>0.0658</b>		<b>697.6882</b>

**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	lb/day										lb/day					
Hauling	3.5300e-003	0.1145	0.0235	3.5000e-004	7.6900e-003	3.3000e-004	8.0100e-003	2.1200e-003	3.1000e-004	2.4300e-003		37.3984	37.3984	1.9200e-003		37.4463
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
Worker	0.0164	0.0112	0.1120	3.6000e-004	0.0389	2.6000e-004	0.0392	0.0104	2.4000e-004	0.0106		35.7501	35.7501	8.0000e-004		35.7701
<b>Total</b>	<b>0.0199</b>	<b>0.1257</b>	<b>0.1355</b>	<b>7.1000e-004</b>	<b>0.0466</b>	<b>5.9000e-004</b>	<b>0.0472</b>	<b>0.0125</b>	<b>5.5000e-004</b>	<b>0.0130</b>		<b>73.1484</b>	<b>73.1484</b>	<b>2.7200e-003</b>		<b>73.2164</b>

**3.3 Grading - 2023**

**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	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.5328	4.6269	5.7191	9.6600e-003		0.2253	0.2253		0.2175	0.2175		922.2231	922.2231	0.1358		925.6178
<b>Total</b>	<b>0.5328</b>	<b>4.6269</b>	<b>5.7191</b>	<b>9.6600e-003</b>	<b>0.7528</b>	<b>0.2253</b>	<b>0.9780</b>	<b>0.4138</b>	<b>0.2175</b>	<b>0.6313</b>		<b>922.2231</b>	<b>922.2231</b>	<b>0.1358</b>		<b>925.6178</b>

**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	lb/day										lb/day					
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
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
Worker	0.0244	0.0160	0.1639	5.5000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178		55.0126	55.0126	1.1400e-003		55.0412
<b>Total</b>	<b>0.0244</b>	<b>0.0160</b>	<b>0.1639</b>	<b>5.5000e-004</b>	<b>0.0657</b>	<b>4.0000e-004</b>	<b>0.0661</b>	<b>0.0174</b>	<b>3.7000e-004</b>	<b>0.0178</b>		<b>55.0126</b>	<b>55.0126</b>	<b>1.1400e-003</b>		<b>55.0412</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	lb/day										lb/day					
Fugitive Dust					0.3218	0.0000	0.3218	0.1769	0.0000	0.1769			0.0000			0.0000

Off-Road	0.5328	4.6269	5.7191	9.6600e-003		0.2253	0.2253		0.2175	0.2175	0.0000	922.2231	922.2231	0.1358		925.6178
<b>Total</b>	<b>0.5328</b>	<b>4.6269</b>	<b>5.7191</b>	<b>9.6600e-003</b>	<b>0.3218</b>	<b>0.2253</b>	<b>0.5471</b>	<b>0.1769</b>	<b>0.2175</b>	<b>0.3944</b>	<b>0.0000</b>	<b>922.2231</b>	<b>922.2231</b>	<b>0.1358</b>		<b>925.6178</b>

**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	lb/day										lb/day					
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
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
Worker	0.0244	0.0160	0.1639	5.5000e-004	0.0623	4.0000e-004	0.0627	0.0166	3.7000e-004	0.0170		55.0126	55.0126	1.1400e-003		55.0412
<b>Total</b>	<b>0.0244</b>	<b>0.0160</b>	<b>0.1639</b>	<b>5.5000e-004</b>	<b>0.0623</b>	<b>4.0000e-004</b>	<b>0.0627</b>	<b>0.0166</b>	<b>3.7000e-004</b>	<b>0.0170</b>		<b>55.0126</b>	<b>55.0126</b>	<b>1.1400e-003</b>		<b>55.0412</b>

**3.4 Building Construction - 2023**

**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	lb/day										lb/day					
Off-Road	0.3988	3.4489	5.0428	8.3300e-003		0.1575	0.1575		0.1552	0.1552		793.1519	793.1519	0.0940		795.5030
<b>Total</b>	<b>0.3988</b>	<b>3.4489</b>	<b>5.0428</b>	<b>8.3300e-003</b>		<b>0.1575</b>	<b>0.1575</b>		<b>0.1552</b>	<b>0.1552</b>		<b>793.1519</b>	<b>793.1519</b>	<b>0.0940</b>		<b>795.5030</b>

**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	lb/day										lb/day					
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
Vendor	0.0110	0.3921	0.0993	1.2900e-003	0.0339	4.2000e-004	0.0343	9.7600e-003	4.1000e-004	0.0102		136.6770	136.6770	6.3600e-003		136.8361
Worker	0.0397	0.0261	0.2663	9.0000e-004	0.1068	6.6000e-004	0.1075	0.0283	6.1000e-004	0.0289		89.3955	89.3955	1.8600e-003		89.4419
<b>Total</b>	<b>0.0507</b>	<b>0.4181</b>	<b>0.3656</b>	<b>2.1900e-003</b>	<b>0.1407</b>	<b>1.0800e-003</b>	<b>0.1418</b>	<b>0.0381</b>	<b>1.0200e-003</b>	<b>0.0391</b>		<b>226.0725</b>	<b>226.0725</b>	<b>8.2200e-003</b>		<b>226.2781</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	lb/day										lb/day					
Off-Road	0.3988	3.4489	5.0428	8.3300e-003		0.1575	0.1575		0.1552	0.1552	0.0000	793.1519	793.1519	0.0940		795.5030
<b>Total</b>	<b>0.3988</b>	<b>3.4489</b>	<b>5.0428</b>	<b>8.3300e-003</b>		<b>0.1575</b>	<b>0.1575</b>		<b>0.1552</b>	<b>0.1552</b>	<b>0.0000</b>	<b>793.1519</b>	<b>793.1519</b>	<b>0.0940</b>		<b>795.5030</b>

**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
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Worker	0.0305	0.0201	0.2049	6.9000e-004	0.0822	5.1000e-004	0.0827	0.0218	4.7000e-004	0.0223		68.7658	68.7658	1.4300e-003		68.8015
<b>Total</b>	<b>0.0305</b>	<b>0.0201</b>	<b>0.2049</b>	<b>6.9000e-004</b>	<b>0.0822</b>	<b>5.1000e-004</b>	<b>0.0827</b>	<b>0.0218</b>	<b>4.7000e-004</b>	<b>0.0223</b>		<b>68.7658</b>	<b>68.7658</b>	<b>1.4300e-003</b>		<b>68.8015</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	lb/day										lb/day					
Off-Road	0.4790	4.6762	6.3271	9.6700e-003		0.2321	0.2321		0.2144	0.2144	0.0000	922.4261	922.4261	0.2900		929.6763
Paving	0.0524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.5314</b>	<b>4.6762</b>	<b>6.3271</b>	<b>9.6700e-003</b>		<b>0.2321</b>	<b>0.2321</b>		<b>0.2144</b>	<b>0.2144</b>	<b>0.0000</b>	<b>922.4261</b>	<b>922.4261</b>	<b>0.2900</b>		<b>929.6763</b>

**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	lb/day										lb/day					
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
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
Worker	0.0305	0.0201	0.2049	6.9000e-004	0.0779	5.1000e-004	0.0784	0.0207	4.7000e-004	0.0212		68.7658	68.7658	1.4300e-003		68.8015
<b>Total</b>	<b>0.0305</b>	<b>0.0201</b>	<b>0.2049</b>	<b>6.9000e-004</b>	<b>0.0779</b>	<b>5.1000e-004</b>	<b>0.0784</b>	<b>0.0207</b>	<b>4.7000e-004</b>	<b>0.0212</b>		<b>68.7658</b>	<b>68.7658</b>	<b>1.4300e-003</b>		<b>68.8015</b>

**4.0 Operational Detail - Mobile**

#### 4.1 Mitigation Measures Mobile

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

#### 4.2 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		
Total	0.00	0.00	0.00		

#### 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-	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

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.561348	0.038614	0.190285	0.107199	0.015389	0.005180	0.024554	0.046236	0.002209	0.002456	0.005491	0.000334	0.000704

#### 5.0 Energy Detail

Historical Energy Use: N



## 5.1 Mitigation Measures Energy

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

## 5.2 Energy by Land Use - NaturalGas Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
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
<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>

## Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
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
<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>

## 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	lb/day										lb/day					
Mitigated	0.0146	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.6800e-003	6.6800e-003	2.0000e-005		7.1100e-003
Unmitigated	0.0146	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.6800e-003	6.6800e-003	2.0000e-005		7.1100e-003

### 6.2 Area by SubCategory

#### Unmitigated

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

Architectural Coating	3.4900e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0108					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005			6.6800e-003	6.6800e-003	2.0000e-005	7.1100e-003
<b>Total</b>	<b>0.0146</b>	<b>3.0000e-005</b>	<b>3.1100e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>			<b>6.6800e-003</b>	<b>6.6800e-003</b>	<b>2.0000e-005</b>	<b>7.1100e-003</b>

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.4900e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0108					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.1100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005			6.6800e-003	6.6800e-003	2.0000e-005	7.1100e-003
<b>Total</b>	<b>0.0146</b>	<b>3.0000e-005</b>	<b>3.1100e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>			<b>6.6800e-003</b>	<b>6.6800e-003</b>	<b>2.0000e-005</b>	<b>7.1100e-003</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

**8.0 Waste Detail**

**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

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