ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
429 East Cotati Avenue
Cotati, California 94931
Tel: 707-794-0400 *Fax: 707-794-0405*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

M E M O

Date: April 4, 2019
Revised July 16, 2019

To: **Julie Wright**
David J. Powers & Associates, Inc.

From: **James A. Reyff**
Illingworth & Rodkin, Inc.

RE: Newark Area 4 Air Quality Assessment Update (I&R Job 18-102)

Illingworth & Rodkin, Inc. has prepared this memo to analyze whether the proposed development of Area 4 (Project) is within the scope of the Newark Areas 3 and 4 Specific Plan project (Specific Plan) analyzed in the 2009 Newark Areas 3 and 4 Air Quality Assessment (2009 AQ Study) and the 2015 Newark Areas 3 and 4 Specific Plan Project Recirculated EIR (REIR). The 2009 AQ Study and 2015 REIR analyzed the development permitted by the Specific Plan, which allows for up to 1,260 housing units of various densities in Areas 3 and 4, an elementary school, a golf course, parks, and open space areas, as well as retention of existing light industrial and institutional uses (Ohlone College, City fire station, park, and community activity center).

Since the City approved the Specific Plan, Area 3 has begun development, with 386 residences, an elementary school, parks, infrastructure, and landscaping. The Project would develop Area 4, which consists of 560 acres and is surrounded by the Alameda County Flood Control & Water District channel to the north, the Union Pacific Railroad (UPRR) to the east, the City of Newark/City of Fremont city limits (generally Stevenson Boulevard) to the south, and Mowry Slough to the west. Of the approximately 560 acres, the Specific Plan allows approximately 316 to be developed and divides the development envelope into three subareas (Sub-Area B, C and D). Development within the approximately 316 acres may include a golf course, single-family detached houses, and neighborhood parks. An 80-foot setback from the centerline of the railroad tracks is required for any residential development within Sub-Areas B and C.

The Specific Plan also approved the extension of Stevenson Boulevard into Area 4, with a bridge overcrossing of the UPRR tracks and modification to two Pacific Gas & Electric

Company (PG&E) towers and electric transmission lines to provide sufficient clearance of the Stevenson Boulevard overcrossing, and a combined emergency vehicle access (EVA) and pedestrian/bicycle trail across Area 4 just west of the UPRR tracks. The Project includes these components of the Specific Plan.

The Specific Plan has a remaining residential capacity of 874 units. The Project proposes to develop only 469 single-family residences, which when added to the development in Area 3, results in 405 fewer residences than analyzed in the 2009 AQ Study and 2015 REIR. In addition, the Project no longer proposes a golf course. The REIR assumed that both Area 3 & 4 would be constructed with the import of 2.1 million cubic yards of fill. Area 3 did not require fill import, as the soils were balanced on the site. Area 4 will require approximately 1,674,650 cubic yards of imported fill.

BAAQMD CEQA Air Quality Guidelines

The EIR's air quality analysis used the thresholds proposed by the Bay Area Air Quality Management District (BAAQMD) in 2009 and adopted in the May 2011 BAAQMD *CEQA Air Quality Guidelines*. BAAQMD's process for adopting the 2011 CEQA Air Quality Guidelines were challenged, particularly the guidelines regarding analysis of existing air quality impacts on proposed new sensitive receptors. The litigation and the California Supreme Court's ruling were unrelated to the science supporting the significance thresholds in the 2011 *CEQA Air Quality Guidelines* related to determining the project's impact on the existing environment. BAAQMD updated the *CEQA Air Quality Guidelines* in 2017, but the significance thresholds for evaluating the impacts of a project's criteria air pollutants (CAPs), toxic air contaminants (TACs) emissions, and odors remain unchanged from the thresholds used in the 2009 Air Quality Analysis and 2015 REIR.

Consistency with the Clean Air Plan

The REIR found that the Specific Plan project would be consistent with the 2010 Clean Air Plan, with MM AIR-1.1. MM AIR-1.1 states:

> The Specific Plan shall incorporate the following measures, which would reduce transportation-related emissions. The measures listed in below are expected to include implementation of appropriate TCMs. Incorporation of these measures would reduce the impact to a less-than-significant level.
>
> - Improve existing or construct new bus pullouts and transit stops at convenient locations along Cherry Street and Stevenson Boulevard. Pullouts shall be designed so that normal traffic flow on arterial roadways would not be impeded when buses are pulled over to serve riders. Bus stops shall include shelters, benches and posting of transit information;
> - Appropriate bicycle amenities shall be included. This would include bike lane connections throughout the project site. Off-site bicycle lane improvements shall

be considered for roadways that would serve the project;

- The City and project proponents shall explore and implement feasible means to bring transit or shuttle service to Area 4;
- Provide pedestrian sidewalks or paths throughout the project site with convenient access to bus stops along adjacent arterials;
- Consider providing pedestrian signs and signalization to make a pedestrian friendly environment. Include convenient pedestrian crossings at strategic areas with count-down signals at intersections that would enhance pedestrian use;
- Review landscape plans to ensure that they provide new trees that would shade buildings and walkways in summer to reduce the cooling loads on buildings;
- Develop and implement building practices for the project that that are based on energy efficient standards that exceed State building code.
- Require that only natural gas fireplaces or woodstoves that meet current U.S. EPA standards be installed in new homes. (Since circulation of the 2009 Draft EIR, the BAAQMD has prohibited the installation of wood burning fireplaces in new homes. [The project does not include wood burning fireplaces.])

The project would be required to follow the measures in MM AIR-1.1.

Since the circulation of the REIR, the BAAQMD has adopted the 2017 Clean Air Plan, which updates the 2010 Clean Air Plan. As with the 2010 Clean Air Plan, the 2017 Clean Air Plan is designed to achieve progress in bringing the San Francisco Area air basin into attainment for the California 1-hour and 8-hour ozone standard. Ozone is formed through chemical reactions between reactive organic gases (ROG) and nitrogen oxides (NOx) in the presence of sunlight, and therefore, efforts to reduce ozone seek to limit emissions of ROG and NOx into the atmosphere. There are no new requirements in the 2017 Clean Air Plan that would apply to the project or information in the 2017 Clean Air Plan that would indicate that the project would have a new or substantially more significant impact related to impeding the implementation of the 2017 Clean Air Plan. Therefore, the project's impacts are within the scope of the impacts identified in the REIR.

Assessment of Air Quality Impacts - Emissions

Air quality impacts were analyzed for the project by predicting short-term construction period emissions and long-term project operational emissions using the CalEEMod model. CalEEMod was used to compute construction emissions based on the provided phasing schedule and equipment usage projections. Under these conditions, a 5-year build out schedule was assumed. The project would require the import of 1,674,650 cubic yards of fill material. This is reflected in the Site Preparation and Site Grading schedule. Emissions associated with import of this large volume of soil material was computed using Caltrans's

CT-EMFAC (Version 6.0.0.18677) model. Inputs to the model included the total soil hauling volume, number of trips (based on 20-cubic yard capacity trucks and two trips per haul), trip length (assumed to be 20 miles one way), vehicle type (heavy duty diesel truck), truck speed (15mph on site and 35 miles mph offsite), and idle time (5 minutes per trip).

The project is subject to General Plan Action HW-1.G, which requires construction contractors to implement basic control measures consistent with BAAQMD recommendations to limit emissions of construction-related criteria pollutants, including dust. These include extensive dust control measures and controls that apply to construction equipment exhaust emissions. Primary dust control measures include extensive site watering, control of vehicle speeds, limits on idling time, and control of track-out dirt.

Since the project could be constructed within five years, the total emissions were divided by the number of workdays in a five-year period to compute average daily emissions. Output for the Emissions from CalEEMod are reported in Table 1.

Table 1 Project Construction and Operation Emissions for Build Out of Area 4

Scenario	Modeled Emissions[1]			
	Reactive Organic Gases (ROG)	**Nitrogen Oxides (NOx)**	**Exhaust Respirable Particulates (PM_{10})**	**Exhaust Fine Particulates ($PM_{2.5}$)**
Construction (assuming 5-year build out[2])				
Construction Equipment	10.1 tons 16 lbs/day	8.9 tons 14 lbs/day	0.4 ton 1 lb/day	0.3 ton <1 lb/day
Construction Haul Trips	0.6 ton 1 lb/day	14.4 tons 23 lbs/day	0.5 ton 1 lb/day	0.3 ton <1 lb/day
Total Construction	10.7 tons 17 lbs/day	24.3 tons 37 lbs/day	0.9 ton 2 lb/day	0.6 ton 1 lb/day
BAAQMD Significance Thresholds	54 lbs/avg day	54 lbs/avg day	82 lbs/avg day	54 lbs/avg day
Operation				
Operation in 2025	7.1 tons/yr 39 lbs/day	6.5 tons/yr 36 lbs/day	3.7 tons/yr 20 lbs/day	1.1 tons/yr 6 lbs/day
BAAQMD Significance Thresholds	10 tons/yr 54 lbs/day	10 tons/yr 54 lbs/day	15 tons/yr 82 lbs/day	10 tons/yr 54 lbs/day

[1] Emissions are shown in both tons per year and pounds per day for reference to the REIR analysis and BAAQMD significance thresholds.
[2] Assuming 260 workdays per year or 1,280 workdays for construction and 365 days per year for operation.

Construction

The REIR identified short-term construction period emissions as significant, since

emissions of NOx would exceed the significance thresholds contained in the 2011 BAAQMD *CEQA Air Quality Guidelines.* Mitigation measures to reduce construction period impacts were identified. These included BAAQMD-recommended construction mitigation measures as well as including measures to reduce exhaust emissions from off-road construction equipment. The REIR found that with implementation of these measures, short-term construction impacts would be less than significant.

The project would comply with General Plan Action HW-1.G to reduce air quality impacts associated with grading and new construction. As shown in Table 1, the project's total construction emissions would be less than significant. Accordingly, the project's impacts to air quality during construction are within the scope of the REIR.

Operation

Traffic was the primary source of air pollutant emissions identified in the REIR analysis that led to significant and unavoidable air quality impacts. The REIR concluded that buildout of the Specific Plan would exceed BAAQMD's thresholds for ROG and NOx. Further, the air basin remains out of attainment for ozone (with respect to National and California Ambient Air Quality Standards). This was described as Impact AIR-2 in the REIR. As stated in the REIR, incorporation of Transportation Control Measures (MM AIR-1.1) would reduce the emissions resulting from the entire Specific Plan development (Areas 3 and 4), but ROG and NOx emissions from buildout of the Specific Plan would remain significant with mitigation.

As described above, the project would be required to implement REIR mitigation measure MM AIR-1.1 for consistency with the Clean Air Plan. In addition, the project proposes to meet new 2019 Title 24 energy efficiency standards that would include the installation of solar power for each residence. This is anticipated to reduce the project's energy-related demand from utilities by 53 percent[1]. Each residence would include infrastructure to power electric vehicles. Emissions associated with project operation are also report in Table 1 and are shown not to result in a new significant impact or substantially more severe significant impact related to operational emissions compared to the REIR.

Assessment of TAC Emissions

The REIR found that the Specific Plan project would not be a temporary or permanent source of air pollution that would expose the public to substantial pollutant concentrations.

BAAQMD has developed community risk thresholds that evaluate increased cancer risk, non-cancer adverse health impacts in terms of a hazard index and annual PM2.5

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[1] California Energy Commission. 2019 Building Energy Efficiency Standards. See https://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf

concentrations. Project construction would be a temporary source of TAC and PM2.5 emissions. Most on-site construction equipment would be diesel-powered. DPM that would be emitted from this equipment and trucks used during construction, is a TAC that can elevate cancer risk and $PM_{2.5}$ concentrations.

In applying the community risk thresholds, BAAQMD recommends that sensitive receptors within 1,000 feet of a project be considered. The closest sensitive receptors to the project are located beyond 1,000 feet of the project boundaries. A health risk assessment of the project construction activities was not conducted since sensitive receptors are located far away from the site. Given the large distance and temporary nature of this impact, community risk caused by construction is considered less than significant.

Local Air Quality Impacts

At a local level, uncontrolled project construction could exceed ambient air quality standards for particulate matter (PM10 and to some extent PM2.5); however, BAAQMD considers appropriate application of control measures sufficient to mitigate this impact. These control measures are required under Action HW-1.G of the General Plan and would be implemented by the project.

Carbon monoxide emissions from traffic generated by the project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) in the Bay Area since the early 1990s. As a result, the region has been designated as attainment for the standard. The highest measured level over any 8-hour averaging period during the last 3 years in the Bay Area is less than 3.0 parts per million (ppm), compared to the ambient air quality standard of 9.0 ppm. Intersections affected by the project would have traffic volumes well below the BAAQMD screening criteria of 44,000 vehicles during the peak hour, and thus, would not cause a violation of an ambient air quality standard or have a considerable contribution to cumulative violations of these standards.[2] The project would not cause the violation of an air quality standard or worsen an existing violation of an air quality standard.

Odor

During construction, the various diesel-powered vehicles and equipment in use onsite would create localized odors. These odors would be temporary and not likely to be noticeable for extended periods of time much beyond the project's site boundaries. The proposed residential uses are not expected to produce any offensive odors that would result

[2] For a land-use project type, the BAAQMD CEQA Air Quality Guidelines state that a proposed project would result in a less than significant impact to localized carbon monoxide concentrations if the project would not increase traffic at affected intersections with more than 44,000 vehicles per hour.

in frequent odor complaints; therefore, consistent with the REIR, the project would not result in a significant odor impact.

Greenhouse Gas Emissions

The REIR used a per capita emission threshold to evaluate GHG emissions and compared those to a threshold recommended in the BAAQMD 2011 CEQA Air Quality Guidelines to meet Statewide GHG emission reduction goals in 2020. This assessment computes per capita GHG emissions by dividing the total emissions by the anticipated number of new residents. The expected number of new residents was computed using the number of persons per household reported by the State Department of Finance for Newark. A threshold used for a point of comparison with the REIR was developed by BAAQMD in their 2011 CEQA Air Quality Guidelines; however, that threshold addressed thresholds established to meet Statewide GHG emission reduction goals for the year 2020.

As described previously, the CalEEMod model was used to predict emissions associated with the proposed Area 4 project. The project would have temporary GHG emissions during five years of construction and then operational emissions after the project is constructed and occupied. GHG Emissions associated with the project are shown in Table 2 below. These emissions calculations include project design features that would reduce emissions and assume the project is constructed to meet new 2019 energy efficiency standards.

Table 2 Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	Proposed Project 2025
Construction (total – 2019 through 2024)	Construction 1,519 Truck hauling 5,274
Operation (2025)	
Area	46
Energy Consumption	962
Mobile	3,955
Solid Waste Generation	283
Water Usage	41
Total Operation	5,287
Service Population Emissions (Emissions divided by 1,595 new residents[3])	3.3
Significance Threshold	3.7 in 2025

[3] Based on California Department of Finance estimate of 3.40 persons per household for Newark for 1/1/2018. See http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/ , accessed 3/15/2019.

Attachment

CalEEMod Output - Construction

Unmitigated Emissions

	ROG	Nox	CO	SO2	PM10	PM10	PM10	PM2.5	PM2.5	PM2.5	GHG
2019	0.16	1.77	0.95	0.00	0.85	0.08	0.93	0.29	0.08	0.37	163
2020	0.32	3.54	2.13	0.00	0.91	0.15	1.06	0.32	0.14	0.46	386
2021	0.13	1.28	1.16	0.00	0.54	0.06	0.59	0.12	0.05	0.17	188
2022	1.17	1.32	1.24	0.00	0.17	0.03	0.21	0.05	0.03	0.08	382
2023	6.13	0.97	1.09	0.00	0.23	0.02	0.25	0.06	0.02	0.08	382
2024	2.20	0.05	0.09	0.00	0.01	0.00	0.02	0.00	0.00	0.01	19
Total	10.11	8.92	6.67	0.02	2.71	0.35	3.06	0.85	0.32	1.17	1,519
	15.8	13.9	10.4	0.0	4.2	0.5	4.8	1.3	0.5	1.8	

Tier 4 Final Mitigated Emissions

	ROG	Nox	CO	SO2	PM10	PM10	PM10	PM2.5	PM2.5	PM2.5
2019	0.03	0.09	0.90	0.00	0.34	0.00	0.34	0.12	0.00	0.12
2020	0.06	0.23	2.12	0.00	0.37	0.01	0.38	0.13	0.01	0.14
2021	0.03	0.11	1.28	0.00	0.22	0.00	0.22	0.05	0.00	0.05
2022	1.12	0.79	1.34	0.00	0.17	0.00	0.18	0.05	0.00	0.05
2023	6.09	0.60	1.12	0.00	0.23	0.00	0.23	0.06	0.00	0.06
2024	2.20	0.01	0.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Total	9.5272	1.82312	6.8429	0.01676	1.3359	0.02032	1.3562	0.4048	0.02006	0.42486

Tier 4 Interim Mitigated Emissions

	ROG	Nox	CO	SO2	PM10	PM10	PM10	PM2.5	PM2.5	PM2.5
2019	0.03	0.51	1.01	0.00	0.34	0.00	0.34	0.12	0.00	0.12
2020	0.08	1.21	2.41	0.00	0.37	0.01	0.38	0.13	0.01	0.14
2021	0.04	0.73	1.35	0.00	0.22	0.00	0.22	0.05	0.00	0.05
2022	1.13	1.21	1.34	0.00	0.17	0.00	0.18	0.05	0.00	0.05
2023	6.10	0.87	1.13	0.00	0.23	0.00	0.23	0.06	0.00	0.06
2024	2.20	0.04	0.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Total	9.5724	4.5595	7.3338	0.01676	1.3359	0.02087	1.3568	0.4048	0.0206	0.4254
	15.0	7.1	11.5	0.0	2.1	0.0	2.1	0.6	0.0	0.7

Newark Area 4 Truck Hauling emissions

Fill Material:	1,674,650	cy
Truck Capcacity:	20	cy
Truck loads	83,733	loads
Trips	167,465	trips
VMT	20	mi/trip
idle time	2	min/trip

Emissions computed using Ct-Emfac per 1,000 haul trips

Emissions/1000 trips	Running (gm)	Idle (gm)	Running Loss (gm)	Tire Wear (gm)	Brake Wear (gm)	Total (gm)	Total (tons)
ROG	3,346	g/mi	3,162	78	106	3,346	0.004
TOG	4,082		3,885	91	106	4,082	0.004
CO	17,864		17,495	369	-	17,864	0.02
NOx	78,153		75,627	2,526	-	78,153	0.086
CO2	31,523,106		30,989,493	533,613	-	31,523,106	34.748
CH4	440		434	6	-	440	<0.001
PM10	526		524	2	-	2,791	0.003
PM2.5	504		501	2	-	1,376	0.002

Total	grams	tons	
ROG	560,321	0.62	0.96
TOG	683,642	0.75	
CO	2,991,612	3.29	
NOx	13,087,825.16	14.41	22.52
CO2	5,279,016,963	5,274	
CH4	73,718	0.08	
PM10	467,328	0.51	0.80
PM2.5	230,348	0.25	0.40

CalEEMod Output - Operation

Operation - Unmitigated/no features	ROG	Nox	CO	SO2	fugPM10	exPM10	totPM10	fugPM2.5	exPM2.5	totPM2.5	GHG
Area	6.157	0.0745	3.4937			0.0221	0.0221		0.0221	0.0221	46
Energy	0.107	0.9147	0.3892			0.074	0.074		0.074	0.074	1,562
Mobile	0.9191	6.047	10.0185		3.6773	0.035	3.7123	0.9882	0.0328	1.021	4,045
Waste											283
Water											50
Total	7.2	7.0					3.8			1.1	5,986
	39.36	38.55					20.87			6.12	

Operation - Unmitigated/no features	ROG	Nox	CO	SO2	fugPM10	exPM10	totPM10	fugPM2.5	exPM2.5	totPM2.5	GHG
Area	6.157	0.0745	3.4937			0.0221	0.0221		0.0221	0.0221	46
Energy	0.0538	0.4598	0.1957			0.0372	0.0372		0.0372	0.0372	962
Mobile	0.9108	5.9859	9.8359		3.5858	0.0343	3.6201	0.9636	0.032	0.9956	3,955
Waste											283
Water											41
Total	7.1	6.5					3.7			1.1	5,287
	39.02	35.73					20.16			5.78	

Newark Area 4

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	469.00	Dwelling Unit	100.00	1,312,260.00	1341

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Rate

Land Use - Using construction estimates per CalEEMod guidance

Construction Phase - Based on construction schedule

Off-road Equipment - Based on construction schedule

Off-road Equipment - Based on construction schedule

Off-road Equipment - Based on construction schedule

Off-road Equipment - Based on construction schedule

Off-road Equipment - Based on construction schedule

Off-road Equipment - Based on construction schedule

Grading - Based on construction schedule

Trips and VMT - Hauling emissions computed with Ct-EMFAC. Cement and asphalt included as vendor trips

Vehicle Trips - Vehicle Trips - from traffic = 9.15,9.52,8.28

Woodstoves - No wood burning = 319 nat gas

Energy Use - energy reduciton features described in mitigation tab

Water And Wastewater - All wtp treatment

Stationary Sources - Emergency Generators and Fire Pumps -

Construction Off-road Equipment Mitigation - Best available control technology and BMPs

Mobile Land Use Mitigation - NEV network is electric charging stations in all new homes

Area Mitigation -

Energy Mitigation - Assummed 2020 Title 24 (-53%) that includes solar power genration on each unit.

Water Mitigation - water efficiency features

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
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tblConstructionPhase	NumDays	110.00	400.00
tblConstructionPhase	NumDays	1,550.00	400.00
tblConstructionPhase	NumDays	155.00	400.00
tblConstructionPhase	NumDays	110.00	100.00
tblConstructionPhase	NumDays	60.00	45.00
tblConstructionPhase	PhaseEndDate	2/26/2027	5/10/2024
tblConstructionPhase	PhaseEndDate	4/24/2026	11/10/2023
tblConstructionPhase	PhaseEndDate	5/15/2020	4/2/2021
tblConstructionPhase	PhaseEndDate	9/25/2026	9/16/2022
tblConstructionPhase	PhaseEndDate	10/11/2019	9/20/2019
tblConstructionPhase	PhaseEndDate	5/15/2020	2/3/2022
tblConstructionPhase	PhaseStartDate	9/26/2026	10/30/2022
tblConstructionPhase	PhaseStartDate	5/16/2020	4/30/2022
tblConstructionPhase	PhaseStartDate	10/12/2019	9/22/2019
tblConstructionPhase	PhaseStartDate	4/25/2026	4/30/2022
tblConstructionPhase	PhaseStartDate	5/16/2020	4/30/2021
tblFireplaces	FireplaceWoodMass	228.80	0.00

tblFireplaces	NumberGas	117.25	319.00
tblFireplaces	NumberWood	201.67	0.00
tblGrading	AcresOfGrading	585.00	580.00
tblGrading	MaterialImported	0.00	1,621,150.00
tblLandUse	LandUseSquareFeet	844,200.00	1,312,260.00
tblLandUse	LotAcreage	152.27	100.00
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.20
tblOffRoadEquipment	UsageHours	7.00	1.00
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tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	0.50
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripNumber	0.00	2,200.00

tblTripsAndVMT	HaulingTripNumber	202,644.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	2,300.00
tblVehicleTrips	ST_TR	9.91	9.52
tblVehicleTrips	SU_TR	8.62	8.28
tblVehicleTrips	WD_TR	9.52	9.15
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	956.80	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1629	1.7725	0.9508	1.8000e-003	0.8485	0.0818	0.9303	0.2915	0.0752	0.3668	0.0000	161.8587	161.8587	0.0489	0.0000	163.0802
2020	0.3193	3.5366	2.1289	4.3500e-003	0.9130	0.1499	1.0629	0.3236	0.1379	0.4615	0.0000	382.6038	382.6038	0.1183	0.0000	385.5604
2021	0.1255	1.2789	1.1649	2.1200e-003	0.5356	0.0584	0.5940	0.1186	0.0537	0.1724	0.0000	186.1334	186.1334	0.0571	0.0000	187.5601
2022	1.1707	1.3228	1.2414	4.1400e-003	0.1735	0.0337	0.2072	0.0469	0.0314	0.0783	0.0000	380.7292	380.7292	0.0412	0.0000	381.7585
2023	6.1312	0.9672	1.0926	4.1400e-003	0.2283	0.0233	0.2515	0.0616	0.0222	0.0838	0.0000	380.7035	380.7035	0.0230	0.0000	381.2794
2024	2.2044	0.0465	0.0939	2.1000e-004	0.0128	2.3100e-003	0.0151	3.4000e-003	2.2800e-003	5.6800e-003	0.0000	18.6344	18.6344	9.0000e-004	0.0000	18.6569
Maximum	**6.1312**	**3.5366**	**2.1289**	**4.3500e-003**	**0.9130**	**0.1499**	**1.0629**	**0.3236**	**0.1379**	**0.4615**	**0.0000**	**382.6038**	**382.6038**	**0.1183**	**0.0000**	**385.5604**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0331	0.5075	1.0108	1.8000e-003	0.3363	2.8600e-003	0.3392	0.1151	2.8600e-003	0.1180	0.0000	161.8585	161.8585	0.0489	0.0000	163.0800
2020	0.0768	1.2058	2.4091	4.3500e-003	0.3687	6.9300e-003	0.3756	0.1296	6.9200e-003	0.1365	0.0000	382.6034	382.6034	0.1183	0.0000	385.5599
2021	0.0365	0.7253	1.3496	2.1200e-003	0.2163	3.3600e-003	0.2197	0.0482	3.3500e-003	0.0516	0.0000	186.1332	186.1332	0.0571	0.0000	187.5599
2022	1.1272	1.2121	1.3418	4.1400e-003	0.1735	4.2600e-003	0.1778	0.0469	4.1400e-003	0.0510	0.0000	380.7291	380.7291	0.0412	0.0000	381.7584
2023	6.0988	0.8686	1.1278	4.1400e-003	0.2283	3.2400e-003	0.2315	0.0616	3.1200e-003	0.0647	0.0000	380.7034	380.7034	0.0230	0.0000	381.2793
2024	2.2000	0.0402	0.0947	2.1000e-004	0.0128	2.2000e-004	0.0130	3.4000e-003	2.1000e-004	3.6100e-003	0.0000	18.6344	18.6344	9.0000e-004	0.0000	18.6569
Maximum	**6.0988**	**1.2121**	**2.4091**	**4.3500e-003**	**0.3687**	**6.9300e-003**	**0.3756**	**0.1296**	**6.9200e-003**	**0.1365**	**0.0000**	**382.6034**	**382.6034**	**0.1183**	**0.0000**	**385.5599**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**5.35**	**48.91**	**-9.91**	**0.00**	**50.73**	**94.03**	**55.67**	**52.13**	**93.62**	**63.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-22-2019**	**10-21-2019**	1.1039	0.2868
2	**10-22-2019**	**1-21-2020**	1.0300	0.3225
3	**1-22-2020**	**4-21-2020**	0.9569	0.3185
4	**4-22-2020**	**7-21-2020**	0.9565	0.3181
5	**7-22-2020**	**10-21-2020**	0.9672	0.3217
6	**10-22-2020**	**1-21-2021**	0.9517	0.3220
7	**1-22-2021**	**4-21-2021**	0.6932	0.2483
8	**4-22-2021**	**7-21-2021**	0.1693	0.1479
9	**7-22-2021**	**10-21-2021**	0.1877	0.1640
10	**10-22-2021**	**1-21-2022**	0.1815	0.1641

11	**1-22-2022**	**4-21-2022**	0.0226	0.0232
12	**4-22-2022**	**7-21-2022**	0.5849	0.5216
13	**7-22-2022**	**10-21-2022**	0.5265	0.4696
14	**10-22-2022**	**1-21-2023**	1.7439	1.6996
15	**1-22-2023**	**4-21-2023**	1.7925	1.7565
16	**4-22-2023**	**7-21-2023**	1.8092	1.7729
17	**7-22-2023**	**10-21-2023**	1.8301	1.7933
18	**10-22-2023**	**1-21-2024**	1.6190	1.6039
19	**1-22-2024**	**4-21-2024**	1.5404	1.5331
20	**4-22-2024**	**7-21-2024**	0.3215	0.3200
		Highest	1.8301	1.7933

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	6.1573	0.0745	3.4937	4.0000e-004		0.0221	0.0221		0.0221	0.0221	0.0000	45.5121	45.5121	6.2100e-003	7.3000e-004	45.8850
Energy	0.1070	0.9147	0.3892	5.8400e-003		0.0740	0.0740		0.0740	0.0740	0.0000	1,551.7278	1,551.7278	0.0696	0.0296	1,562.2899
Mobile	0.9191	6.0471	10.0185	0.0437	3.6773	0.0350	3.7124	0.9882	0.0328	1.0209	0.0000	4,041.2209	4,041.2209	0.1533	0.0000	4,045.0540
Waste						0.0000	0.0000		0.0000	0.0000	114.3286	0.0000	114.3286	6.7566	0.0000	283.2442
Water						0.0000	0.0000		0.0000	0.0000	10.8112	30.6190	41.4302	0.0403	0.0241	49.6321
Total	**7.1834**	**7.0362**	**13.9014**	**0.0499**	**3.6773**	**0.1311**	**3.8084**	**0.9882**	**0.1288**	**1.1170**	**125.1398**	**5,669.0798**	**5,794.2196**	**7.0260**	**0.0545**	**5,986.1052**

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	6.1573	0.0745	3.4937	4.0000e-004		0.0221	0.0221		0.0221	0.0221	0.0000	45.5121	45.5121	6.2100e-003	7.3000e-004	45.8850
Energy	0.0538	0.4598	0.1957	2.9400e-003		0.0372	0.0372		0.0372	0.0372	0.0000	954.9117	954.9117	0.0524	0.0185	961.7364
Mobile	0.9108	5.9859	9.8359	0.0427	3.5858	0.0343	3.6200	0.9636	0.0320	0.9956	0.0000	3,951.4868	3,951.4868	0.1511	0.0000	3,955.2636
Waste						0.0000	0.0000		0.0000	0.0000	114.3286	0.0000	114.3286	6.7566	0.0000	283.2442
Water						0.0000	0.0000		0.0000	0.0000	8.6490	25.7281	34.3770	0.0323	0.0193	40.9492
Total	**7.1218**	**6.5202**	**13.5253**	**0.0461**	**3.5858**	**0.0935**	**3.6793**	**0.9636**	**0.0913**	**1.0549**	**122.9775**	**4,977.6386**	**5,100.6162**	**6.9987**	**0.0386**	**5,287.0782**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.86**	**7.33**	**2.71**	**7.75**	**2.49**	**28.64**	**3.39**	**2.49**	**29.11**	**5.56**	**1.73**	**12.20**	**11.97**	**0.39**	**29.20**	**11.68**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/22/2019	9/20/2019	5	45	
2	Grading	Grading	9/22/2019	4/2/2021	5	400	
3	trenching	Trenching	4/30/2021	2/3/2022	5	200	
4	Building Construction	Building Construction	4/30/2022	11/10/2023	5	400	
5	Paving	Paving	4/30/2022	9/16/2022	5	100	
6	Building Interior	Architectural Coating	10/30/2022	5/10/2024	5	400	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 580

Acres of Paving: 0

Residential Indoor: 2,657,327; Residential Outdoor: 885,776; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Interior	Air Compressors	1	4.00	78	0.48
Building Interior	Forklifts	1	1.00	89	0.20
trenching	Excavators	2	6.00	158	0.38
Grading	Excavators	2	2.20	158	0.38
Building Construction	Cranes	1	1.00	231	0.29
Building Construction	Forklifts	3	2.00	89	0.20
Building Construction	Generator Sets	1	2.00	84	0.74
Paving	Pavers	2	4.00	130	0.42
Paving	Rollers	2	4.00	80	0.38
trenching	Tractors/Loaders/Backhoes	2	4.00	97	0.37
Grading	Rubber Tired Dozers	1	5.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	1.00	97	0.37
Grading	Graders	1	3.40	187	0.41
Grading	Tractors/Loaders/Backhoes	2	2.20	97	0.37
Paving	Paving Equipment	2	4.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	4.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	6.00	247	0.40
Grading	Scrapers	2	5.00	367	0.48
Building Construction	Welders	1	0.50	46	0.45
Paving	Cement and Mortar Mixers	2	1.30	9	0.56

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Interior	2	34.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Building Construction	9	169.00	50.00	2,200.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT
trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	2,300.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3049	0.0000	0.3049	0.1676	0.0000	0.1676	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0679	0.7165	0.3205	5.7000e-004		0.0368	0.0368		0.0339	0.0339	0.0000	51.3822	51.3822	0.0163	0.0000	51.7886
Total	**0.0679**	**0.7165**	**0.3205**	**5.7000e-004**	**0.3049**	**0.0368**	**0.3417**	**0.1676**	**0.0339**	**0.2015**	**0.0000**	**51.3822**	**51.3822**	**0.0163**	**0.0000**	**51.7886**

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	1.5300e-003	1.1700e-003	0.0118	3.0000e-005	3.2000e-003	2.0000e-005	3.2300e-003	8.5000e-004	2.0000e-005	8.7000e-004	0.0000	2.9374	2.9374	8.0000e-005	0.0000	2.9395
Total	**1.5300e-003**	**1.1700e-003**	**0.0118**	**3.0000e-005**	**3.2000e-003**	**2.0000e-005**	**3.2300e-003**	**8.5000e-004**	**2.0000e-005**	**8.7000e-004**	**0.0000**	**2.9374**	**2.9374**	**8.0000e-005**	**0.0000**	**2.9395**

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					0.1189	0.0000	0.1189	0.0654	0.0000	0.0654	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1748	0.3348	5.7000e-004		9.3000e-004	9.3000e-004		9.3000e-004	9.3000e-004	0.0000	51.3822	51.3822	0.0163	0.0000	51.7886
Total	**0.0102**	**0.1748**	**0.3348**	**5.7000e-004**	**0.1189**	**9.3000e-004**	**0.1198**	**0.0654**	**9.3000e-004**	**0.0663**	**0.0000**	**51.3822**	**51.3822**	**0.0163**	**0.0000**	**51.7886**

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	1.5300e-003	1.1700e-003	0.0118	3.0000e-005	3.2000e-003	2.0000e-005	3.2300e-003	8.5000e-004	2.0000e-005	8.7000e-004	0.0000	2.9374	2.9374	8.0000e-005	0.0000	2.9395

Total	**1.5300e-003**	**1.1700e-003**	**0.0118**	**3.0000e-005**	**3.2000e-003**	**2.0000e-005**	**3.2300e-003**	**8.5000e-004**	**2.0000e-005**	**8.7000e-004**	**0.0000**	**2.9374**	**2.9374**	**8.0000e-005**	**0.0000**	**2.9395**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5347	0.0000	0.5347	0.1216	0.0000	0.1216	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0907	1.0529	0.5975	1.1400e-003		0.0449	0.0449		0.0413	0.0413	0.0000	102.3169	102.3169	0.0324	0.0000	103.1262
Total	**0.0907**	**1.0529**	**0.5975**	**1.1400e-003**	**0.5347**	**0.0449**	**0.5796**	**0.1216**	**0.0413**	**0.1629**	**0.0000**	**102.3169**	**102.3169**	**0.0324**	**0.0000**	**103.1262**

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	2.7300e-003	2.0800e-003	0.0210	6.0000e-005	5.6900e-003	4.0000e-005	5.7300e-003	1.5100e-003	4.0000e-005	1.5500e-003	0.0000	5.2221	5.2221	1.5000e-004	0.0000	5.2258
Total	**2.7300e-003**	**2.0800e-003**	**0.0210**	**6.0000e-005**	**5.6900e-003**	**4.0000e-005**	**5.7300e-003**	**1.5100e-003**	**4.0000e-005**	**1.5500e-003**	**0.0000**	**5.2221**	**5.2221**	**1.5000e-004**	**0.0000**	**5.2258**

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					0.2085	0.0000	0.2085	0.0474	0.0000	0.0474	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.3295	0.6432	1.1400e-003		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003	0.0000	102.3168	102.3168	0.0324	0.0000	103.1261
Total	**0.0186**	**0.3295**	**0.6432**	**1.1400e-003**	**0.2085**	**1.8700e-003**	**0.2104**	**0.0474**	**1.8700e-003**	**0.0493**	**0.0000**	**102.3168**	**102.3168**	**0.0324**	**0.0000**	**103.1261**

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	2.7300e-003	2.0800e-003	0.0210	6.0000e-005	5.6900e-003	4.0000e-005	5.7300e-003	1.5100e-003	4.0000e-005	1.5500e-003	0.0000	5.2221	5.2221	1.5000e-004	0.0000	5.2258
Total	**2.7300e-003**	**2.0800e-003**	**0.0210**	**6.0000e-005**	**5.6900e-003**	**4.0000e-005**	**5.7300e-003**	**1.5100e-003**	**4.0000e-005**	**1.5500e-003**	**0.0000**	**5.2221**	**5.2221**	**1.5000e-004**	**0.0000**	**5.2258**

3.3 Grading - 2020

Unmitigated Construction On-Site

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

Fugitive Dust					0.8923	0.0000	0.8923	0.3181	0.0000	0.3181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3102	3.5299	2.0603	4.1400e-003		0.1498	0.1498		0.1378	0.1378	0.0000	364.1890	364.1890	0.1178	0.0000	367.1337
Total	**0.3102**	**3.5299**	**2.0603**	**4.1400e-003**	**0.8923**	**0.1498**	**1.0420**	**0.3181**	**0.1378**	**0.4559**	**0.0000**	**364.1890**	**364.1890**	**0.1178**	**0.0000**	**367.1337**

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	9.0600e-003	6.6900e-003	0.0686	2.0000e-004	0.0207	1.4000e-004	0.0209	5.5100e-003	1.3000e-004	5.6400e-003	0.0000	18.4148	18.4148	4.8000e-004	0.0000	18.4267
Total	**9.0600e-003**	**6.6900e-003**	**0.0686**	**2.0000e-004**	**0.0207**	**1.4000e-004**	**0.0209**	**5.5100e-003**	**1.3000e-004**	**5.6400e-003**	**0.0000**	**18.4148**	**18.4148**	**4.8000e-004**	**0.0000**	**18.4267**

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					0.3480	0.0000	0.3480	0.1241	0.0000	0.1241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0677	1.1991	2.3405	4.1400e-003		6.7900e-003	6.7900e-003		6.7900e-003	6.7900e-003	0.0000	364.1886	364.1886	0.1178	0.0000	367.1332
Total	**0.0677**	**1.1991**	**2.3405**	**4.1400e-003**	**0.3480**	**6.7900e-003**	**0.3548**	**0.1241**	**6.7900e-003**	**0.1309**	**0.0000**	**364.1886**	**364.1886**	**0.1178**	**0.0000**	**367.1332**

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	9.0600e-003	6.6900e-003	0.0686	2.0000e-004	0.0207	1.4000e-004	0.0209	5.5100e-003	1.3000e-004	5.6400e-003	0.0000	18.4148	18.4148	4.8000e-004	0.0000	18.4267
Total	**9.0600e-003**	**6.6900e-003**	**0.0686**	**2.0000e-004**	**0.0207**	**1.4000e-004**	**0.0209**	**5.5100e-003**	**1.3000e-004**	**5.6400e-003**	**0.0000**	**18.4148**	**18.4148**	**4.8000e-004**	**0.0000**	**18.4267**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5234	0.0000	0.5234	0.1154	0.0000	0.1154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0738	0.8244	0.4974	1.0400e-003		0.0347	0.0347		0.0319	0.0319	0.0000	91.7662	91.7662	0.0297	0.0000	92.5082
Total	**0.0738**	**0.8244**	**0.4974**	**1.0400e-003**	**0.5234**	**0.0347**	**0.5581**	**0.1154**	**0.0319**	**0.1473**	**0.0000**	**91.7662**	**91.7662**	**0.0297**	**0.0000**	**92.5082**

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	2.1100e-003	1.5000e-003	0.0157	5.0000e-005	5.2200e-003	4.0000e-005	5.2500e-003	1.3900e-003	3.0000e-005	1.4200e-003	0.0000	4.4779	4.4779	1.1000e-004	0.0000	4.4806
Total	**2.1100e-003**	**1.5000e-003**	**0.0157**	**5.0000e-005**	**5.2200e-003**	**4.0000e-005**	**5.2500e-003**	**1.3900e-003**	**3.0000e-005**	**1.4200e-003**	**0.0000**	**4.4779**	**4.4779**	**1.1000e-004**	**0.0000**	**4.4806**

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					0.2041	0.0000	0.2041	0.0450	0.0000	0.0450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.3021	0.5896	1.0400e-003		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	91.7661	91.7661	0.0297	0.0000	92.5081
Total	**0.0171**	**0.3021**	**0.5896**	**1.0400e-003**	**0.2041**	**1.7100e-003**	**0.2058**	**0.0450**	**1.7100e-003**	**0.0467**	**0.0000**	**91.7661**	**91.7661**	**0.0297**	**0.0000**	**92.5081**

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	2.1100e-003	1.5000e-003	0.0157	5.0000e-005	5.2200e-003	4.0000e-005	5.2500e-003	1.3900e-003	3.0000e-005	1.4200e-003	0.0000	4.4779	4.4779	1.1000e-004	0.0000	4.4806

Total	**2.1100e-003**	**1.5000e-003**	**0.0157**	**5.0000e-005**	**5.2200e-003**	**4.0000e-005**	**5.2500e-003**	**1.3900e-003**	**3.0000e-005**	**1.4200e-003**	**0.0000**	**4.4779**	**4.4779**	**1.1000e-004**	**0.0000**	**4.4806**

3.4 trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0467	0.4511	0.6308	9.6000e-004		0.0236	0.0236		0.0217	0.0217	0.0000	83.9187	83.9187	0.0271	0.0000	84.5972
Total	**0.0467**	**0.4511**	**0.6308**	**9.6000e-004**		**0.0236**	**0.0236**		**0.0217**	**0.0217**	**0.0000**	**83.9187**	**83.9187**	**0.0271**	**0.0000**	**84.5972**

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	2.8100e-003	2.0000e-003	0.0210	7.0000e-005	6.9600e-003	5.0000e-005	7.0000e-003	1.8500e-003	4.0000e-005	1.8900e-003	0.0000	5.9706	5.9706	1.4000e-004	0.0000	5.9741
Total	**2.8100e-003**	**2.0000e-003**	**0.0210**	**7.0000e-005**	**6.9600e-003**	**5.0000e-005**	**7.0000e-003**	**1.8500e-003**	**4.0000e-005**	**1.8900e-003**	**0.0000**	**5.9706**	**5.9706**	**1.4000e-004**	**0.0000**	**5.9741**

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	0.0145	0.4197	0.7233	9.6000e-004		1.5600e-003	1.5600e-003		1.5600e-003	1.5600e-003	0.0000	83.9186	83.9186	0.0271	0.0000	84.5971
Total	**0.0145**	**0.4197**	**0.7233**	**9.6000e-004**		**1.5600e-003**	**1.5600e-003**		**1.5600e-003**	**1.5600e-003**	**0.0000**	**83.9186**	**83.9186**	**0.0271**	**0.0000**	**84.5971**

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	2.8100e-003	2.0000e-003	0.0210	7.0000e-005	6.9600e-003	5.0000e-005	7.0000e-003	1.8500e-003	4.0000e-005	1.8900e-003	0.0000	5.9706	5.9706	1.4000e-004	0.0000	5.9741
Total	**2.8100e-003**	**2.0000e-003**	**0.0210**	**7.0000e-005**	**6.9600e-003**	**5.0000e-005**	**7.0000e-003**	**1.8500e-003**	**4.0000e-005**	**1.8900e-003**	**0.0000**	**5.9706**	**5.9706**	**1.4000e-004**	**0.0000**	**5.9741**

3.4 trenching - 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	5.6200e-003	0.0521	0.0855	1.3000e-004		2.6300e-003	2.6300e-003		2.4200e-003	2.4200e-003	0.0000	11.4443	11.4443	3.7000e-003	0.0000	11.5368
Total	**5.6200e-003**	**0.0521**	**0.0855**	**1.3000e-004**		**2.6300e-003**	**2.6300e-003**		**2.4200e-003**	**2.4200e-003**	**0.0000**	**11.4443**	**11.4443**	**3.7000e-003**	**0.0000**	**11.5368**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.4000e-004	2.6200e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.7845	0.7845	2.0000e-005	0.0000	0.7849
Total	**3.6000e-004**	**2.4000e-004**	**2.6200e-003**	**1.0000e-005**	**9.5000e-004**	**1.0000e-005**	**9.6000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.7845**	**0.7845**	**2.0000e-005**	**0.0000**	**0.7849**

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	1.9800e-003	0.0572	0.0986	1.3000e-004		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	11.4443	11.4443	3.7000e-003	0.0000	11.5368
Total	**1.9800e-003**	**0.0572**	**0.0986**	**1.3000e-004**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**11.4443**	**11.4443**	**3.7000e-003**	**0.0000**	**11.5368**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.4000e-004	2.6200e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.7845	0.7845	2.0000e-005	0.0000	0.7849
Total	**3.6000e-004**	**2.4000e-004**	**2.6200e-003**	**1.0000e-005**	**9.5000e-004**	**1.0000e-005**	**9.6000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.7845**	**0.7845**	**2.0000e-005**	**0.0000**	**0.7849**

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	0.0257	0.2420	0.2595	4.2000e-004		0.0130	0.0130		0.0123	0.0123	0.0000	36.7180	36.7180	8.2500e-003	0.0000	36.9244
Total	**0.0257**	**0.2420**	**0.2595**	**4.2000e-004**		**0.0130**	**0.0130**		**0.0123**	**0.0123**	**0.0000**	**36.7180**	**36.7180**	**8.2500e-003**	**0.0000**	**36.9244**

Unmitigated Construction Off-Site

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

Category	tons/yr										MT/yr					
Hauling	1.8200e-003	0.0714	0.0117	1.7000e-004	5.8400e-003	1.3000e-004	5.9700e-003	1.5200e-003	1.3000e-004	1.6500e-003	0.0000	16.2433	16.2433	1.2200e-003	0.0000	16.2738
Vendor	0.0127	0.4445	0.0929	1.1800e-003	0.0287	8.4000e-004	0.0296	8.3100e-003	8.1000e-004	9.1200e-003	0.0000	113.4914	113.4914	6.0200e-003	0.0000	113.6418
Worker	0.0439	0.0301	0.3227	1.0700e-003	0.1169	7.7000e-004	0.1177	0.0311	7.1000e-004	0.0318	0.0000	96.6728	96.6728	2.1500e-003	0.0000	96.7264
Total	**0.0583**	**0.5460**	**0.4272**	**2.4200e-003**	**0.1515**	**1.7400e-003**	**0.1532**	**0.0409**	**1.6500e-003**	**0.0426**	**0.0000**	**226.4075**	**226.4075**	**9.3900e-003**	**0.0000**	**226.6421**

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	8.4600e-003	0.1656	0.2836	4.2000e-004		8.8000e-004	8.8000e-004		8.8000e-004	8.8000e-004	0.0000	36.7180	36.7180	8.2500e-003	0.0000	36.9243
Total	**8.4600e-003**	**0.1656**	**0.2836**	**4.2000e-004**		**8.8000e-004**	**8.8000e-004**		**8.8000e-004**	**8.8000e-004**	**0.0000**	**36.7180**	**36.7180**	**8.2500e-003**	**0.0000**	**36.9243**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8200e-003	0.0714	0.0117	1.7000e-004	5.8400e-003	1.3000e-004	5.9700e-003	1.5200e-003	1.3000e-004	1.6500e-003	0.0000	16.2433	16.2433	1.2200e-003	0.0000	16.2738
Vendor	0.0127	0.4445	0.0929	1.1800e-003	0.0287	8.4000e-004	0.0296	8.3100e-003	8.1000e-004	9.1200e-003	0.0000	113.4914	113.4914	6.0200e-003	0.0000	113.6418
Worker	0.0439	0.0301	0.3227	1.0700e-003	0.1169	7.7000e-004	0.1177	0.0311	7.1000e-004	0.0318	0.0000	96.6728	96.6728	2.1500e-003	0.0000	96.7264

Total	**0.0583**	**0.5460**	**0.4272**	**2.4200e-003**	**0.1515**	**1.7400e-003**	**0.1532**	**0.0409**	**1.6500e-003**	**0.0426**	**0.0000**	**226.4075**	**226.4075**	**9.3900e-003**	**0.0000**	**226.6421**

3.5 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	tons/yr										MT/yr					
Off-Road	0.0304	0.2858	0.3315	5.4000e-004		0.0144	0.0144		0.0136	0.0136	0.0000	47.2216	47.2216	0.0106	0.0000	47.4853
Total	**0.0304**	**0.2858**	**0.3315**	**5.4000e-004**		**0.0144**	**0.0144**		**0.0136**	**0.0136**	**0.0000**	**47.2216**	**47.2216**	**0.0106**	**0.0000**	**47.4853**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5800e-003	0.0677	0.0130	2.1000e-004	6.0600e-003	7.0000e-005	6.1300e-003	1.6000e-003	7.0000e-005	1.6700e-003	0.0000	20.0747	20.0747	1.2400e-003	0.0000	20.1058
Vendor	0.0119	0.4424	0.1043	1.4800e-003	0.0369	4.7000e-004	0.0374	0.0107	4.5000e-004	0.0111	0.0000	141.7663	141.7663	6.1800e-003	0.0000	141.9207
Worker	0.0525	0.0348	0.3799	1.3200e-003	0.1503	9.6000e-004	0.1513	0.0400	8.9000e-004	0.0409	0.0000	119.5399	119.5399	2.4700e-003	0.0000	119.6016
Total	**0.0660**	**0.5449**	**0.4972**	**3.0100e-003**	**0.1933**	**1.5000e-003**	**0.1948**	**0.0523**	**1.4100e-003**	**0.0537**	**0.0000**	**281.3809**	**281.3809**	**9.8900e-003**	**0.0000**	**281.6281**

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	0.0109	0.2129	0.3646	5.4000e-004		1.1300e-003	1.1300e-003		1.1300e-003	1.1300e-003	0.0000	47.2216	47.2216	0.0106	0.0000	47.4852
Total	**0.0109**	**0.2129**	**0.3646**	**5.4000e-004**		**1.1300e-003**	**1.1300e-003**		**1.1300e-003**	**1.1300e-003**	**0.0000**	**47.2216**	**47.2216**	**0.0106**	**0.0000**	**47.4852**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5800e-003	0.0677	0.0130	2.1000e-004	6.0600e-003	7.0000e-005	6.1300e-003	1.6000e-003	7.0000e-005	1.6700e-003	0.0000	20.0747	20.0747	1.2400e-003	0.0000	20.1058
Vendor	0.0119	0.4424	0.1043	1.4800e-003	0.0369	4.7000e-004	0.0374	0.0107	4.5000e-004	0.0111	0.0000	141.7663	141.7663	6.1800e-003	0.0000	141.9207
Worker	0.0525	0.0348	0.3799	1.3200e-003	0.1503	9.6000e-004	0.1513	0.0400	8.9000e-004	0.0409	0.0000	119.5399	119.5399	2.4700e-003	0.0000	119.6016
Total	**0.0660**	**0.5449**	**0.4972**	**3.0100e-003**	**0.1933**	**1.5000e-003**	**0.1948**	**0.0523**	**1.4100e-003**	**0.0537**	**0.0000**	**281.3809**	**281.3809**	**9.8900e-003**	**0.0000**	**281.6281**

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	0.0285	0.2841	0.3695	5.8000e-004		0.0144	0.0144		0.0133	0.0133	0.0000	50.8136	50.8136	0.0163	0.0000	51.2204
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0285**	**0.2841**	**0.3695**	**5.8000e-004**		**0.0144**	**0.0144**		**0.0133**	**0.0133**	**0.0000**	**50.8136**	**50.8136**	**0.0163**	**0.0000**	**51.2204**

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	4.3500e-003	0.1706	0.0280	4.0000e-004	7.1300e-003	3.2000e-004	7.4500e-003	1.9600e-003	3.1000e-004	2.2700e-003	0.0000	38.8151	38.8151	2.9200e-003	0.0000	38.8881
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	2.9700e-003	2.0400e-003	0.0218	7.0000e-005	7.9100e-003	5.0000e-005	7.9600e-003	2.1000e-003	5.0000e-005	2.1500e-003	0.0000	6.5375	6.5375	1.5000e-004	0.0000	6.5411
Total	**7.3200e-003**	**0.1727**	**0.0499**	**4.7000e-004**	**0.0150**	**3.7000e-004**	**0.0154**	**4.0600e-003**	**3.6000e-004**	**4.4200e-003**	**0.0000**	**45.3526**	**45.3526**	**3.0700e-003**	**0.0000**	**45.4292**

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	8.3500e-003	0.2510	0.4324	5.8000e-004		9.3000e-004	9.3000e-004		9.3000e-004	9.3000e-004	0.0000	50.8135	50.8135	0.0163	0.0000	51.2203
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.3500e-003**	**0.2510**	**0.4324**	**5.8000e-004**		**9.3000e-004**	**9.3000e-004**		**9.3000e-004**	**9.3000e-004**	**0.0000**	**50.8135**	**50.8135**	**0.0163**	**0.0000**	**51.2203**

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	4.3500e-003	0.1706	0.0280	4.0000e-004	7.1300e-003	3.2000e-004	7.4500e-003	1.9600e-003	3.1000e-004	2.2700e-003	0.0000	38.8151	38.8151	2.9200e-003	0.0000	38.8881
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	2.9700e-003	2.0400e-003	0.0218	7.0000e-005	7.9100e-003	5.0000e-005	7.9600e-003	2.1000e-003	5.0000e-005	2.1500e-003	0.0000	6.5375	6.5375	1.5000e-004	0.0000	6.5411
Total	**7.3200e-003**	**0.1727**	**0.0499**	**4.7000e-004**	**0.0150**	**3.7000e-004**	**0.0154**	**4.0600e-003**	**3.6000e-004**	**4.4200e-003**	**0.0000**	**45.3526**	**45.3526**	**3.0700e-003**	**0.0000**	**45.4292**

3.7 Building Interior - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.0392					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3900e-003	0.0241	0.0305	5.0000e-005		1.4200e-003	1.4200e-003		1.4100e-003	1.4100e-003	0.0000	4.2076	4.2076	3.7000e-004	0.0000	4.2169
Total	**1.0426**	**0.0241**	**0.0305**	**5.0000e-005**		**1.4200e-003**	**1.4200e-003**		**1.4100e-003**	**1.4100e-003**	**0.0000**	**4.2076**	**4.2076**	**3.7000e-004**	**0.0000**	**4.2169**

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	2.2700e-003	1.5600e-003	0.0167	6.0000e-005	6.0500e-003	4.0000e-005	6.0900e-003	1.6100e-003	4.0000e-005	1.6500e-003	0.0000	5.0012	5.0012	1.1000e-004	0.0000	5.0039
Total	**2.2700e-003**	**1.5600e-003**	**0.0167**	**6.0000e-005**	**6.0500e-003**	**4.0000e-005**	**6.0900e-003**	**1.6100e-003**	**4.0000e-005**	**1.6500e-003**	**0.0000**	**5.0012**	**5.0012**	**1.1000e-004**	**0.0000**	**5.0039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.0392					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1000e-004	0.0178	0.0308	5.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	4.2076	4.2076	3.7000e-004	0.0000	4.2169
Total	**1.0401**	**0.0178**	**0.0308**	**5.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**4.2076**	**4.2076**	**3.7000e-004**	**0.0000**	**4.2169**

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	2.2700e-003	1.5600e-003	0.0167	6.0000e-005	6.0500e-003	4.0000e-005	6.0900e-003	1.6100e-003	4.0000e-005	1.6500e-003	0.0000	5.0012	5.0012	1.1000e-004	0.0000	5.0039

Total	**2.2700e-003**	**1.5600e-003**	**0.0167**	**6.0000e-005**	**6.0500e-003**	**4.0000e-005**	**6.0900e-003**	**1.6100e-003**	**4.0000e-005**	**1.6500e-003**	**0.0000**	**5.0012**	**5.0012**	**1.1000e-004**	**0.0000**	**5.0039**

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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	6.0044					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0183	0.1285	0.1756	2.8000e-004		7.1000e-003	7.1000e-003		7.0200e-003	7.0200e-003	0.0000	24.3104	24.3104	2.0300e-003	0.0000	24.3612
Total	**6.0227**	**0.1285**	**0.1756**	**2.8000e-004**		**7.1000e-003**	**7.1000e-003**		**7.0200e-003**	**7.0200e-003**	**0.0000**	**24.3104**	**24.3104**	**2.0300e-003**	**0.0000**	**24.3612**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0122	8.0800e-003	0.0883	3.1000e-004	0.0350	2.2000e-004	0.0352	9.3000e-003	2.1000e-004	9.5000e-003	0.0000	27.7905	27.7905	5.7000e-004	0.0000	27.8048
Total	**0.0122**	**8.0800e-003**	**0.0883**	**3.1000e-004**	**0.0350**	**2.2000e-004**	**0.0352**	**9.3000e-003**	**2.1000e-004**	**9.5000e-003**	**0.0000**	**27.7905**	**27.7905**	**5.7000e-004**	**0.0000**	**27.8048**

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	6.0044					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2800e-003	0.1028	0.1777	2.8000e-004		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	24.3104	24.3104	2.0300e-003	0.0000	24.3612
Total	**6.0097**	**0.1028**	**0.1777**	**2.8000e-004**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**24.3104**	**24.3104**	**2.0300e-003**	**0.0000**	**24.3612**

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	0.0122	8.0800e-003	0.0883	3.1000e-004	0.0350	2.2000e-004	0.0352	9.3000e-003	2.1000e-004	9.5000e-003	0.0000	27.7905	27.7905	5.7000e-004	0.0000	27.8048
Total	**0.0122**	**8.0800e-003**	**0.0883**	**3.1000e-004**	**0.0350**	**2.2000e-004**	**0.0352**	**9.3000e-003**	**2.1000e-004**	**9.5000e-003**	**0.0000**	**27.7905**	**27.7905**	**5.7000e-004**	**0.0000**	**27.8048**

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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	2.1939					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.2800e-003	0.0438	0.0641	1.0000e-004		2.2300e-003	2.2300e-003		2.2100e-003	2.2100e-003	0.0000	8.8827	8.8827	7.1000e-004	0.0000	8.9005
Total	**2.2002**	**0.0438**	**0.0641**	**1.0000e-004**		**2.2300e-003**	**2.2300e-003**		**2.2100e-003**	**2.2100e-003**	**0.0000**	**8.8827**	**8.8827**	**7.1000e-004**	**0.0000**	**8.9005**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1700e-003	2.6600e-003	0.0298	1.1000e-004	0.0128	8.0000e-005	0.0129	3.4000e-003	7.0000e-005	3.4700e-003	0.0000	9.7517	9.7517	1.9000e-004	0.0000	9.7565
Total	**4.1700e-003**	**2.6600e-003**	**0.0298**	**1.1000e-004**	**0.0128**	**8.0000e-005**	**0.0129**	**3.4000e-003**	**7.0000e-005**	**3.4700e-003**	**0.0000**	**9.7517**	**9.7517**	**1.9000e-004**	**0.0000**	**9.7565**

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	2.1939					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9300e-003	0.0376	0.0649	1.0000e-004		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	8.8827	8.8827	7.1000e-004	0.0000	8.9005
Total	**2.1958**	**0.0376**	**0.0649**	**1.0000e-004**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**8.8827**	**8.8827**	**7.1000e-004**	**0.0000**	**8.9005**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1700e-003	2.6600e-003	0.0298	1.1000e-004	0.0128	8.0000e-005	0.0129	3.4000e-003	7.0000e-005	3.4700e-003	0.0000	9.7517	9.7517	1.9000e-004	0.0000	9.7565
Total	**4.1700e-003**	**2.6600e-003**	**0.0298**	**1.1000e-004**	**0.0128**	**8.0000e-005**	**0.0129**	**3.4000e-003**	**7.0000e-005**	**3.4700e-003**	**0.0000**	**9.7517**	**9.7517**	**1.9000e-004**	**0.0000**	**9.7565**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Implement NEV Network

	ROG	NOx	CO	SO2	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	0.9108	5.9859	9.8359	0.0427	3.5858	0.0343	3.6200	0.9636	0.0320	0.9956	0.0000	3,951.4868	3,951.4868	0.1511	0.0000	3,955.2636
Unmitigated	0.9191	6.0471	10.0185	0.0437	3.6773	0.0350	3.7124	0.9882	0.0328	1.0209	0.0000	4,041.2209	4,041.2209	0.1533	0.0000	4,045.0540

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	4,291.35	4,464.88	3883.32	9,833,961	9,589,096
Total	4,291.35	4,464.88	3,883.32	9,833,961	9,589,096

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.563555	0.037576	0.190339	0.105468	0.014285	0.005132	0.025195	0.047484	0.002230	0.002277	0.005427	0.000351	0.000679

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	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	422.3709	422.3709	0.0422	8.7400e-003	426.0310

Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	492.4645	492.4645	0.0493	0.0102	496.7320
NaturalGas Mitigated	0.0538	0.4598	0.1957	2.9400e-003		0.0372	0.0372		0.0372	0.0372	0.0000	532.5408	532.5408	0.0102	9.7600e-003	535.7054
NaturalGas Unmitigated	0.1070	0.9147	0.3892	5.8400e-003		0.0740	0.0740		0.0740	0.0740	0.0000	1,059.2632	1,059.2632	0.0203	0.0194	1,065.5579

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	1.98498e+007	0.1070	0.9147	0.3892	5.8400e-003		0.0740	0.0740		0.0740	0.0740	0.0000	1,059.2632	1,059.2632	0.0203	0.0194	1,065.5579
Total		**0.1070**	**0.9147**	**0.3892**	**5.8400e-003**		**0.0740**	**0.0740**		**0.0740**	**0.0740**	**0.0000**	**1,059.2632**	**1,059.2632**	**0.0203**	**0.0194**	**1,065.5579**

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	9.97944e+006	0.0538	0.4598	0.1957	2.9400e-003		0.0372	0.0372		0.0372	0.0372	0.0000	532.5408	532.5408	0.0102	9.7600e-003	535.7054
Total		**0.0538**	**0.4598**	**0.1957**	**2.9400e-003**		**0.0372**	**0.0372**		**0.0372**	**0.0372**	**0.0000**	**532.5408**	**532.5408**	**0.0102**	**9.7600e-003**	**535.7054**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	3.74379e+006	492.4645	0.0493	0.0102	496.7320
Total		**492.4645**	**0.0493**	**0.0102**	**496.7320**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	3.21093e+006	422.3709	0.0422	8.7400e-003	426.0310
Total		**422.3709**	**0.0422**	**8.7400e-003**	**426.0310**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	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	6.1573	0.0745	3.4937	4.0000e-004		0.0221	0.0221		0.0221	0.0221	0.0000	45.5121	45.5121	6.2100e-003	7.3000e-004	45.8850
Unmitigated	6.1573	0.0745	3.4937	4.0000e-004		0.0221	0.0221		0.0221	0.0221	0.0000	45.5121	45.5121	6.2100e-003	7.3000e-004	45.8850

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	0.9238					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.1250					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.0200e-003	0.0344	0.0146	2.2000e-004		2.7800e-003	2.7800e-003		2.7800e-003	2.7800e-003	0.0000	39.8237	39.8237	7.6000e-004	7.3000e-004	40.0604
Landscaping	0.1045	0.0401	3.4791	1.8000e-004		0.0193	0.0193		0.0193	0.0193	0.0000	5.6884	5.6884	5.4500e-003	0.0000	5.8246
Total	**6.1573**	**0.0745**	**3.4937**	**4.0000e-004**		**0.0221**	**0.0221**		**0.0221**	**0.0221**	**0.0000**	**45.5121**	**45.5121**	**6.2100e-003**	**7.3000e-004**	**45.8850**

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	0.9238					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	5.1250					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.0200e-003	0.0344	0.0146	2.2000e-004		2.7800e-003	2.7800e-003		2.7800e-003	2.7800e-003	0.0000	39.8237	39.8237	7.6000e-004	7.3000e-004	40.0604
Landscaping	0.1045	0.0401	3.4791	1.8000e-004		0.0193	0.0193		0.0193	0.0193	0.0000	5.6884	5.6884	5.4500e-003	0.0000	5.8246
Total	**6.1573**	**0.0745**	**3.4937**	**4.0000e-004**		**0.0221**	**0.0221**		**0.0221**	**0.0221**	**0.0000**	**45.5121**	**45.5121**	**6.2100e-003**	**7.3000e-004**	**45.8850**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	34.3770	0.0323	0.0193	40.9492
Unmitigated	41.4302	0.0403	0.0241	49.6321

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	30.5572 / 19.2643	41.4302	0.0403	0.0241	49.6321
Total		**41.4302**	**0.0403**	**0.0241**	**49.6321**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	24.4458 / 18.0892	34.3770	0.0323	0.0193	40.9492
Total		**34.3770**	**0.0323**	**0.0193**	**40.9492**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	114.3286	6.7566	0.0000	283.2442
Unmitigated	114.3286	6.7566	0.0000	283.2442

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	563.22	114.3286	6.7566	0.0000	283.2442
Total		**114.3286**	**6.7566**	**0.0000**	**283.2442**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	563.22	114.3286	6.7566	0.0000	283.2442
Total		**114.3286**	**6.7566**	**0.0000**	**283.2442**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Project Name: Area 4 - Total

Project Size	469 Dwelling Units	102 total project acres disturbed	
	1,312,260 s.f. residential	0 s.f. retail	
	0 s.f. office/commercial	0 s.f. other, specify:	
	7 other, specify:	Park in acreage	**Complete ALL Portions in Yellow**
	0 s.f. parking garage	spaces	
	0 s.f. parking lot	spaces	
Construction Hours	8 am to	6 pm	

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Comments
	Demolition	**Start Date:**	**e.g., 9/1/2016**	**Total phase:**	**0**		**Overall Import/Export Volumes**
		End Date:					
	Site Preperation	**Start Date:**	**7/22/2019**	**Total phase:**	**45**		Any pavement demolished and hauled? **0 tons**
		End Date:	**9/22/2019**				**Soil Hauling Volume**
	Graders	174	0.41				
3	Rubber Tired Dozers	255	0.4	6	45	6	Export volume = **0** cubic yards?
4	Tractors/Loaders/Backhoes	97	0.37	4	45	4	Import volume = **0** cubic yards?
	Grading / Excavation	**Start Date:**	**9/22/2019**	**Total phase:**	**400**		
		End Date:	**9/22/2021**				**Soil Hauling Volume**
2	Scrapers	361	0.48	6	332	4.98	
2	Excavators	162	0.38	4	224	2.24	Export volume = **0** cubic yards?
1	Graders	174	0.41	6	224	3.36	Import volume = **1,621,150** cubic yards?
2	Rubber Tired Dozers	255	0.4	6	332	4.98	
2	Tractors/Loaders/Backhoes	97	0.37	4	224	2.24	
	Other Equipment?						
	Trenching	**Start Date:**	**4/30/2021**	**Total phase:**	**200**		
		End Date:	**4/30/2022**				
2	Tractor/Loader/Backhoe	97	0.37	4	200	4	
2	Excavators	162	0.38	6	200	6	
	Other Equipment?						
	Building - Exterior	**Start Date:**	**4/30/2022**	**Total phase:**	**400**		**Cement Trucks? 11,000 cubic yards Total Round-Trips**
		End Date:	**4/30/2024**				
1	Cranes	226	0.29	2	200	1	Electric? (Y/N) ___ Otherwise assumed diesel
3	Forklifts	89	0.2	2	400	2	Liquid Propane (LPG)? (Y/N) ___ Otherwise Assumed diesel
1	Generator Sets	84	0.74	4	200	2	Or temporary line power? (Y/N) ___
3	Tractors/Loaders/Backhoes	97	0.37	2	200	1	otherwise, assume diesel generator
1	Welders	46	0.45	2	100	0.5	
	Other Equipment?					0	
	Building - Interior/Architectural Coating	**Start Date:**	**5/30/2022**	**Total phase:**	**400**		
		End Date:	**5/30/2024**				
1	Air Compressors	78	0.48	4	400	4	
1	Forklifts	89	0.2	2	200	1	
	Other Equipment?						
	Paving	**Start Date:**	**4/30/2022**	**Total phase:**	**100**		
		End Date:	**10/30/2022**				
2	Cement and Mortar Mixers	9	0.56	4	33	1.32	
2	Pavers	125	0.42	6	67	4.02	**Asphalt? 11,500 cubic yards or ____ round trips?**
2	Paving Equipment	130	0.36	6	67	4.02	
2	Rollers	80	0.38	6	67	4.02	
	Tractors/Loaders/Backhoes	97	0.37			0	
	Other Equipment?						

Equipment listed in this sheet is to provide an example of inputs — **Add or subtract phases and equipment, as appropriate**

It is assumed that water trucks would be used during grading — **Modify horepower or load factor, as appropriate**

Typical Equipment Type & Load Factors

OFFROAD Equipment Type	HP	Load Factor
Aerial Lifts	62	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	205	0.5
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	226	0.29
Crawler Tractors	208	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	162	0.38
Forklifts	89	0.2
Generator Sets	84	0.74
Graders	174	0.41
Off-Highway Tractors	122	0.44
Off-Highway Trucks	400	0.38
Other Construction Equipment	171	0.42
Other General Industrial Equipment	150	0.34
Other Material Handling Equipment	167	0.4
Pavers	125	0.42
Paving Equipment	130	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.2
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.4
Rubber Tired Dozers	255	0.4
Rubber Tired Loaders	199	0.36
Scrapers	361	0.48
Signal Boards	6	0.82
Skid Steer Loaders	64	0.37
Surfacing Equipment	253	0.3
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	80	0.5
Welders	46	0.45

Alameda (SF) - 2020 - Annual.EC

File Name:	Alameda (SF) - 2020 - Annual.EC
CT-EMFAC Version:	6.0.0.18677
Run Date:	3/27/2019 6:53:44 PM
Area:	Alameda (SF)
Analysis Year:	2020
Season:	Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category
Truck 1	0.000	0.508
Truck 2	1.000	0.967
Non-Truck	0.000	0.013

==========

Road Length:	20 miles
Volume:	100 vehicles per hour
Number of Hours:	10 hours
Avg. Idling Time:	5 minutes per vehicle
Tot. Idling Time:	83.33 hours

VMT Distribution by Speed (mph):

5	0.00%
10	0.00%
15	5.00%
20	0.00%
25	0.00%
30	0.00%
35	95.00%
40	0.00%
45	0.00%
50	0.00%
55	0.00%
60	0.00%
65	0.00%
70	0.00%
75	0.00%

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Summary of Project Emissions

	Running Exhaust	Idling Exhaust	Running Loss	Tire Wear	Brake Wear	Total	Total

Alameda (SF) - 2020 - Annual.EC

Pollutant Name	(grams)	(grams)	(grams)	(grams)	(grams)	(grams)	(US tons)
ROG	3,161.9	78.3	105.7	-	-	3,345.9	0.004
TOG	3,885.4	91.2	105.7	-	-	4,082.3	0.004
CO	17,495.2	368.9	-	-	-	17,864.1	0.020
NOx	75,627.1	2,525.5	-	-	-	78,152.6	0.086
CO2	30,989,493.0	533,613.2	-	-	-	31,523,106.1	34.748
CH4	434.4	5.9	-	-	-	440.2	<0.001
PM10	523.9	2.4	-	551.6	1,712.7	2,790.6	0.003
PM2.5	501.2	2.3	-	137.9	734.0	1,375.5	0.002

==========END==========
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```
       File Name:       Alameda (SF) - 2020 - Annual.EF
CT-EMFAC Version:       6.0.0.18677
        Run Date:       3/27/2019 6:17:37 PM
            Area:       Alameda (SF)
   Analysis Year:       2020
          Season:       Annual

========================================================================

Vehicle Category        VMT Fraction        Diesel VMT Fraction
                        Across Category   Within Category
         Truck 1               0.000               0.508
         Truck 2               1.000               0.967
       Non-Truck               0.000               0.013

========================================================================

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

       Pollutant Name         5 mph          10 mph          15 mph          20 mph          25 mph
30 mph       35 mph          40 mph          45 mph          50 mph          55 mph          60 mph
65 mph       70 mph          75 mph
                  ROG      0.939224        0.743441        0.491262        0.334151        0.246344
0.185619           0.140559        0.107179        0.082574        0.064622        0.051773        0.047066
   0.047549        0.047900        0.047900
                  TOG      1.156645        0.914359        0.603990        0.410681        0.302688
0.228045           0.172706        0.131757        0.101625        0.079702        0.064093        0.058451
   0.059155        0.059667        0.059667
                  CO       3.873770        3.163477        2.270113        1.682785        1.291749
1.010837           0.801321        0.645165        0.529105        0.443416        0.381010        0.353622
   0.348947        0.347670        0.347670
                  NOx     16.507246       13.277921        9.144262        6.452088        4.870989
4.029990           3.499096        3.136095        2.875703        2.684160        2.542403        2.486387
   2.487512        2.488277        2.488277
                  CO2   2906.134033     2579.196777     2148.228516     1859.667358     1706.183350
```

1601.638184 1517.961304 1448.990234 1390.770630 1341.139404 1304.343994 1288.452637
1288.946655 1289.810181 1289.810181
CH4 0.131533 0.102768 0.067718 0.045940 0.033795
0.025441 0.019297 0.014796 0.011533 0.009220 0.007649 0.007158
0.007352 0.007494 0.007494
PM10 0.047614 0.042923 0.036095 0.031162 0.028327
0.026633 0.025674 0.025391 0.025749 0.026726 0.028307 0.029318
0.029321 0.029324 0.029324
PM2.5 0.045545 0.041060 0.034529 0.029811 0.027100
0.025480 0.024562 0.024292 0.024634 0.025569 0.027082 0.028048
0.028052 0.028054 0.028054

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Fleet Average Idling Exhaust Emission Factors (grams/veh-idle hour)

Pollutant Name	Emission Factor
ROG	0.939487
TOG	1.094845
CO	4.426304
NOx	30.305843
CO2	6403.357910
CH4	0.070528
PM10	0.029157
PM2.5	0.027896

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Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
ROG	0.159021
TOG	0.159021

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Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM10	0.027578
PM2.5	0.006894

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Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM10	0.085637
PM2.5	0.036702

==========END==========