RECON

*An Employee-Owned Company*

November 1, 2019

Mr. Alex Plishner
Vice President
Lennar
16465 Via Esprillo, Suite 150
San Diego, CA 92127

Reference: Air Quality Analysis for the Avion Project (RECON Number 8958)

Dear Mr. Plishner:

The purpose of this report is to assess potential short-term local and regional air quality impacts resulting from development of the Avion Project (project) located in the city of San Diego, California. The project site was previously analyzed in the Black Mountain Ranch (Subarea I) Subarea Plan Environmental Impact Report (96-7902) (Subarea Plan EIR). Because the project would be consistent with the Transportation Phasing Plan for the Subarea Plan, implementation of the project would not result in new operational impacts associated with air quality. However, the project currently proposed would require construction and blasting activity that was not previously analyzed. Consequently, this focused Air Quality Analysis analyzes short-term impacts associated with construction. The analysis of impacts is based on federal and state Ambient Air Quality Standards (AAQS) and assessed in accordance with the regional guidelines, policies, and standards and the San Diego Air Pollution Control District (SDAPCD).

## 1.0 PROJECT DESCRIPTION

The project site consists of a 41.48-acre parcel of undeveloped parcel of land located in the northern part of the City of San Diego, approximately 1.2 miles west of Interstate 15 (Figure 1). Carmel Valley Road/Bernardo Center Drive is located approximately 0.6 mile to the north, and Black Mountain Road is located approximately 1.4 miles to the west. Heritage Bluffs, a new residential development currently under construction, abuts the northern edge of the property. Future access would be provided at the northeast corner of the project site via Winecreek Road. Land uses surrounding the project site include a portion of the Black Mountain Open Space Park to the west, east, and south, Heritage Bluffs residential development to the north, and additional Black Mountain Open Space Park open space lands to the northwest (Figure 2).

The project would develop 84 detached multi-family residential units and associated infrastructure (i.e., private drives, sewer, water, etc.) which would be consistent with the land use identified for the project site (Southeast Perimeter Parcel C) in the Subarea Plan EIR. Project density on-site would be less than what was assumed and analyzed for the property under the Subarea Plan EIR, and the project would transfer the remaining density (14 market-rate units and 19 affordable housing units) to the Black Mountain Ranch North Village Town Center, pursuant to the density transfer allowances established by the Subarea Plan. Consequently, the project would be consistent with the Transportation Phasing Plan for buildout of the Subarea Plan.

Based on initial site investigations, non-rippable rock was found in a majority of the cut locations (Figure 3) and would therefore require blasting during the subgrade rock removal stage. The blasting operations required for the project site would be similar to those conducted at the adjacent Heritage Bluffs site to the northeast.


Project Location

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# FIGURE 1

## Regional Location

Image Source: NearMaps (flown Nov 2017)


0 Feet 600

Project Boundary

Heritage Bluffs Boundary

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FIGURE 2

Project Location on Aerial Photograph

Image Source: NearMaps (flown February 2019)

0 Feet 600

Project Boundary
Heritage Bluffs Boundary
Possible Blasting Locations

FIGURE 3
Possible Blasting Locations

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Blasting operations would require the drilling or hammering of small holes into the rock in a pattern that allows each hole to remove a small amount of rock. This analysis assumes the use of a mounted impact hammer and a drill rig. The area around the blast site would be watered the day before and the morning of the blast in order to dampen the dust.

In order to comply with the County of San Diego Fire Code, the blasting contractor would calculate and use only the amount of explosive in each of the small holes necessary to break the rock around each hole while crushing the rock for removal. The explosive would be detonated at each hole in a sequence with at least 8 milliseconds delay between charges to limit the total amount of vibration generated by the explosive fire at any one time. The blasting orientation would also be controlled in such a way that fractures and the energy from each blast would move the rock towards a hole that has already been cleared, limiting the containment of the explosive and reducing potential vibrations at nearby structures. Another factor the blasting contractor can use to limit vibrations from blasting includes timing of energy release, i.e., the delay between each charge.

## 2.0 ENVIRONMENTAL SETTING

The project site lies within the San Diego Air Basin (SDAB), which is regulated locally by the SDAPCD. Air quality at a given location is a function of the types and quantities of pollutants being emitted into the air locally and throughout the basin, and the dispersal rates of pollutants within the region. The major factors affecting pollutant dispersion are wind speed and direction, the vertical dispersion of pollutants (which is affected by inversions), and the local topography.

### 2.1 Regulatory Framework

#### *2.2.1 Ambient Air Quality Standards*

AAQS represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The U.S. Environmental Protection Agency (U.S. EPA) has designated six criteria pollutants of primary concern: ozone ($O_3$), carbon monoxide (CO), sulfur dioxide ($SO_2$), nitrogen dioxide ($NO_2$), lead (Pb), and particulate matter, which included to sub-categories, particulate matter less than 10 microns ($PM_{10}$) and particulate matter less than 2.5 microns ($PM_{2.5}$). The U.S. EPA developed primary and secondary national ambient air quality standards (NAAQS). Additionally, the state of California has developed the California Ambient Air Quality Standards (CAAQS), which generally set more stringent limits on the criteria pollutants. The NAAQS and CAAQS are summarized in Table 1.

If an air basin is not in either federal or state attainment for a particular pollutant, the basin is classified as non-attainment area for that pollutant. The SDAB is currently classified as a federal non-attainment area for ozone. At the state level, the SDAB is classified a non-attainment area for ozone $PM_{10}$, and $PM_{2.5}$.

#### *2.2.2 State Implementation Plan*

The State Implementation Plan (SIP) is a collection of documents that set forth the state's strategies for achieving ambient air quality standards. The SDAPCD is responsible for preparing and implementing the portion of the SIP applicable to the SDAB. The SDAPCD adopts rules, regulations, and programs to attain state and federal air quality standards, and appropriates money (including permit fees) to achieve its objectives.

#### *2.2.3 Regional Air Quality Strategy*

The SDAPCD prepared the original 1991/1992 Regional Air Quality Strategy (RAQS) in response to requirements set forth in the California Clean Air Act (CAA). The California CAA requires areas that are designated state non-attainment areas for ozone, CO, $SO_2$, and $NO_2$ prepare and implement plans to attain the standards by the earliest practicable date. The California CAA does not provide guidance on timing or requirements for attaining the state $PM_{10}$ and $PM_{2.5}$ standards. Attached as part of the RAQS are the

Transportation Control Measures (TCMs) adopted by the San Diego Association of Governments (SANDAG). Updates of the RAQS and corresponding TCM are required every three years. The RAQS and TCM set forth the steps needed to accomplish attainment of state and federal AAQS. The most recent update of the RAQS and TCM occurred in 2016.

### 2.2 Existing Air Quality

Air quality is commonly expressed as the number of days per year in which air pollution levels exceed federal standards set by the U.S. EPA or state standards set by the California Air Resources Board (CARB). The SDAPCD maintains 10 air-quality monitoring stations located throughout the greater San Diego metropolitan region. Air pollutant concentrations and meteorological information are continuously recorded at these stations. Measurements are then used by scientists to help forecast daily air pollution levels.

The San Diego–Rancho Carmel Drive monitoring station, located at 11403 Rancho Carmel Drive, approximately 1.5 miles east of the project site, is the closest monitoring station to the project site. This monitoring station began operation in 2015 and currently measures CO and $NO_2$. The closest monitoring station that measures a wider range of pollutants is the Escondido–East Valley Parkway monitoring station, located at 600 East Valley Parkway approximately 9 miles northeast of the project site. This monitoring station measures ozone, CO, $NO_2$, $PM_{10}$, and $PM_{2.5}$. This station was temporarily closed in August 2015, and the new Escondido monitoring station is anticipated to begin operation in 2018. Table 2 provides a summary of measurements collected at the San Diego–Rancho Carmel Drive and Escondido–East Valley Parkway monitoring stations for the years 2012 through 2016.

## 3.0 THRESHOLDS OF SIGNIFICANCE

Thresholds used to evaluate potential impacts to air quality are based on applicable criteria in the CEQA Guidelines Appendix G and the City of San Diego Significance Determination Thresholds. The project would have a significant air quality impact if it would (City of San Diego 2016):

1. Conflict with or obstruct implementation of the applicable air quality plan;

2. Result in a violation of any air quality standard or contribute substantially to an existing or projected air quality violation;

3. Expose sensitive receptors to substantial pollutant concentrations;

4. Create objectionable odors affecting a substantial number of people;

5. Result in exceeding 100 pounds per day of particulate matter (dust); or

6. Result in substantial alteration of air movement in the area of the project.

The SDAPCD does not provide specific numeric thresholds for determining the significance of air quality impacts under the CEQA Guidelines. However, the SDAPCD does specify Air Quality Impact Analysis "trigger" levels for criteria pollutant emissions associated with new or modified stationary sources (SDAPCD Rules 20.1, 20.2, and 20.3). The SDAPCD does not consider these trigger levels to represent adverse air quality impacts; rather, if these trigger levels are exceeded by stationary sources associated with a project, the SDAPCD requires an air quality analysis to determine if a significant air quality impact would occur. The air quality impact screening levels are summarized in Table 3.

**Table 1**
**Ambient Air Quality Standards**

| Pollutant | Averaging Time | California Standards[1] | | National Standards[2] | | |
|---|---|---|---|---|---|---|
| | | Concentration[3] | Method[4] | Primary[3,5] | Secondary[3,6] | Method[7] |
| Ozone[8] | 1 Hour | 0.09 ppm (180 µg/m³) | Ultraviolet Photometry | – | Same as Primary Standard | Ultraviolet Photometry |
| | 8 Hour | 0.07 ppm (137 µg/m³) | | 0.070 ppm (137 µg/m³) | | |
| Respirable Particulate Matter ($PM_{10}$)[9] | 24 Hour | 50 µg/m³ | Gravimetric or Beta Attenuation | 150 µg/m³ | Same as Primary Standard | Inertial Separation and Gravimetric Analysis |
| | Annual Arithmetic Mean | 20 µg/m³ | | – | | |
| Fine Particulate Matter ($PM_{2.5}$)[9] | 24 Hour | No Separate State Standard | | 35 µg/m³ | Same as Primary Standard | Inertial Separation and Gravimetric Analysis |
| | Annual Arithmetic Mean | 12 µg/m³ | Gravimetric or Beta Attenuation | 12 µg/m³ | 15 µg/m³ | |
| Carbon Monoxide (CO) | 1 Hour | 20 ppm (23 mg/m³) | Non-dispersive Infrared Photometry | 35 ppm (40 mg/m³) | – | Non-dispersive Infrared Photometry |
| | 8 Hour | 9.0 ppm (10 mg/m³) | | 9 ppm (10 mg/m³) | – | |
| | 8 Hour (Lake Tahoe) | 6 ppm (7 mg/m³) | | – | – | |
| Nitrogen Dioxide ($NO_2$)[10] | 1 Hour | 0.18 ppm (339 µg/m³) | Gas Phase Chemi-luminescence | 100 ppb (188 µg/m³) | – | Gas Phase Chemi-luminescence |
| | Annual Arithmetic Mean | 0.030 ppm (57 µg/m³) | | 0.053 ppm (100 µg/m³) | Same as Primary Standard | |
| Sulfur Dioxide ($SO_2$)[11] | 1 Hour | 0.25 ppm (655 µg/m³) | Ultraviolet Fluorescence | 75 ppb (196 µg/m³) | – | Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method) |
| | 3 Hour | – | | – | 0.5 ppm (1,300 µg/m³) | |
| | 24 Hour | 0.04 ppm (105 µg/m³) | | 0.14 ppm (for certain areas)[11] | – | |
| | Annual Arithmetic Mean | – | | 0.030 ppm (for certain areas)[11] | – | |
| Lead[12,13] | 30 Day Average | 1.5 µg/m³ | Atomic Absorption | – | – | High Volume Sampler and Atomic Absorption |
| | Calendar Quarter | – | | 1.5 µg/m³ (for certain areas)[12] | Same as Primary Standard | |
| | Rolling 3-Month Average | – | | 0.15 µg/m³ | | |
| Visibility Reducing Particles[14] | 8 Hour | See footnote 14 | Beta Attenuation and Transmittance through Filter Tape | No National Standards | | |
| Sulfates | 24 Hour | 25 µg/m³ | Ion Chroma-tography | | | |
| Hydrogen Sulfide | 1 Hour | 0.03 ppm (42 µg/m³) | Ultraviolet Fluorescence | | | |
| Vinyl Chloride[12] | 24 Hour | 0.01 ppm (26 µg/m³) | Gas Chroma-tography | | | |

**Table 1**
**Ambient Air Quality Standards**

NOTES:
ppm = parts per million; ppb = parts per billion; µg/m$^3$ = micrograms per cubic meter; – = not applicable.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, particulate matter ($PM_{10}$, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For $PM_{10}$, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m$^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m$^3$ to 12.0 µg/m$^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m$^3$, as was the annual secondary standards of 15 µg/m$^3$. The existing 24-hour $PM_{10}$ standards (primary and secondary) of 150 µg/m$^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour $SO_2$ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99$^{th}$ percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 $SO_2$ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m$^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[14] In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

SOURCE: CARB 2016.

**Table 2**
**Summary of Air Quality Measurements**

| Pollutant/Standard | Year | | | | |
|---|---|---|---|---|---|
| | 2012 | 2013 | 2014 | 2015 | 2016 |
| **San Diego–Rancho Carmel Drive** | | | | | |
| Carbon Monoxide | | | | | |
| Days State 1-hr Standard Exceeded (20 ppm) | -- | -- | -- | 0 | 0 |
| Days State 8-hr Standard Exceeded (9.0 ppm) | -- | -- | -- | 0 | 0 |
| Days Federal 1-hr Standard Exceeded (35 ppm) | -- | -- | -- | 0 | 0 |
| Days Federal 8-hr Standard Exceeded (9 ppm) | -- | -- | -- | 0 | 0 |
| Max 1-hr (ppm) | -- | -- | -- | 2.4 | 2.0 |
| Max 8-hr (ppm) | -- | -- | -- | 1.4 | 1.2 |
| Nitrogen Dioxide | | | | | |
| Days State 1-hour Standard Exceeded (0.18 ppm) | -- | -- | -- | 0 | 0 |
| Days Federal 1-hour Standard Exceeded (0.100 ppm) | -- | -- | -- | 0 | 0 |
| Max 1-hr (ppm) | -- | -- | -- | 0.055 | 0.062 |
| Annual Average (ppm) | -- | -- | -- | -- | 0.017 |
| **Escondido–East Valley Parkway** | | | | | |
| Ozone | | | | | |
| Days State 1-hour Standard Exceeded (0.09 ppm) | 0 | 0 | 1 | 0 | -- |
| Days State 8-hour Standard Exceeded (0.07 ppm) | 2 | 4 | 8 | 3 | -- |
| Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm) | 1 | 4 | 7 | 2 | -- |
| Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm) | 0 | 0 | 5 | 0 | -- |
| Max. 1-hr (ppm) | 0.084 | 0.084 | 0.099 | 0.079 | -- |
| Max 8-hr (ppm) | 0.074 | 0.075 | 0.080 | 0.071 | -- |
| Carbon Monoxide | | | | | |
| Days State 1-hr Standard Exceeded (20 ppm) | 0 | 0 | 0 | 0 | -- |
| Days State 8-hr Standard Exceeded (9.0 ppm) | 0 | 0 | 0 | 0 | -- |
| Days Federal 1-hr Standard Exceeded (35 ppm) | 0 | 0 | 0 | 0 | -- |
| Days Federal 8-hr Standard Exceeded (9 ppm) | 0 | 0 | 0 | 0 | -- |
| Max 1-hr (ppm) | 4.4 | 3.2 | 3.8 | 3.1 | -- |
| Max 8-hr (ppm) | 3.8 | 2.6 | 3.1 | 2.0 | -- |
| Nitrogen Dioxide | | | | | |
| Days State 1-hour Standard Exceeded (0.18 ppm) | 0 | 0 | 0 | 0 | -- |
| Days Federal 1-hour Standard Exceeded (0.100 ppm) | 0 | 0 | 0 | 0 | -- |
| Max 1-hr (ppm) | 0.062 | 0.061 | 0.063 | 0.048 | -- |
| Annual Average (ppm) | 0.013 | 0.013 | 0.011 | -- | -- |
| Particulate Matter less than 10 Microns* | | | | | |
| Measured Days State 24-hour Standard Exceeded (50 $\mu g/m^3$) | 0 | 1 | 0 | 0 | -- |
| Calculated Days State 24-hour Standard Exceeded (50 $\mu g/m^3$) | 0.0 | 6.0 | 0.0 | -- | -- |
| Measured Days Federal 24-hour Standard Exceeded (150 $\mu g/m^3$) | 0 | 0 | 0 | 0 | -- |
| Calculated Days Federal 24-hour Standard Exceeded (150 $\mu g/m^3$) | 0.0 | 0.0 | 0.0 | -- | -- |
| Max. Daily ($\mu g/m^3$) | 33.0 | 82.0 | 44.0 | 31.0 | -- |
| State Annual Average ($\mu g/m^3$) | 18.1 | 23.1 | 21.5 | -- | -- |
| Federal Annual Average ($\mu g/m^3$) | 18.0 | 23.2 | 21.6 | 17.5 | -- |
| Particulate Matter less than 2.5 Microns* | | | | | |
| Measured Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$) | 1 | 1 | 1 | 0 | -- |
| Calculated Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$) | 3.1 | 1.1 | 1.0 | -- | -- |
| Max. Daily ($\mu g/m^3$) | 70.7 | 56.3 | 82.3 | 62.5 | -- |
| State Annual Average ($\mu g/m^3$) | -- | 10.5 | 9.6 | -- | -- |
| Federal Annual Average ($\mu g/m^3$) | 10.5 | 11.0 | 9.9 | -- | -- |

SOURCES: CARB 2018, SDAPCD 2017.
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; -- = Not available.
* Calculated days value. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

| Table 3<br>Air Quality Impact Analysis Trigger Levels | | | |
|---|---|---|---|
| Pollutant | Emission Rate (pounds/hour) | Emission Rate (pounds/day) | Emission Rate (tons/year) |
| Carbon Monoxide | 100 | 550 | 100 |
| Nitrogen Oxide | 25 | 250 | 40 |
| Particulate Matter less than 10 Microns | -- | 100 | 15 |
| Sulfur Oxide | 25 | 250 | 40 |
| Lead | -- | 3.2 | 0.6 |
| Particulate Matter less than 2.5 Microns | -- | 67 | 10 |
| Reactive Organic Gases | -- | 137 | 15 |
| SOURCE: City of San Diego 2016, SDAPCD, Rules 20.1, 20.2, 20.3 (SDAPCD 2016). | | | |

## 4.0 EMISSION CALCULATIONS

Air emissions were calculated using California Emissions Estimator Model (CalEEMod) 2016.3.2 (California Air Pollution Control Officers Association [CAPCOA] 2017). CalEEMod is a tool used to estimate air emissions resulting from land development projects in the state of California. The model generates air quality emission estimates from three basics sources: construction sources, area sources (e.g., landscaping equipment and natural gas heating), and mobile sources (e.g., traffic). CalEEMod provides emission estimates of nitrogen oxide ($NO_X$), CO, sulfur oxide ($SO_X$), $PM_{10}$, $PM_{2.5}$, and reactive organic gases (ROG). As discussed, this focused air quality report analyzes short-term impacts associated with construction.

Construction-related activities are temporary, short-term sources of air emissions. Sources of construction-related air emissions include:

- Fugitive dust from grading activities;
- Construction equipment exhaust;
- Construction-related trips by workers, delivery trucks, and material-hauling trucks; and
- Construction-related power consumption.

Construction-related pollutants result from dust raised during demolition and grading, emissions from construction vehicles, and chemicals used during construction. Fugitive dust emissions vary greatly during construction and are dependent on the amount and type of activity, silt content of the soil, and the weather. Vehicles moving over paved and unpaved surfaces, demolition, excavation, earth movement, grading, and wind erosion from exposed surfaces are all sources of fugitive dust. Construction operations are subject to the requirements established in SDAPCD Regulation 4, Rules 52, 54, and 55.

Heavy-duty construction equipment is usually diesel powered. In general, emissions from diesel-powered equipment contain more $NO_X$, $SO_X$, and particulate matter than gasoline-powered engines. However, diesel-powered engines generally produce less CO and less ROG than gasoline-powered engines. Standard construction equipment includes tractors/loaders/backhoes, rubber-tired dozers, excavators, graders, cranes, forklifts, rollers, paving equipment, generator sets, welders, cement and mortar mixers, and air compressors.

Primary inputs are the numbers of each piece of equipment and the length of each construction stage. Specific construction phasing and equipment parameters are not available at this time. However, CalEEMod can estimate the required construction equipment when project-specific information is unavailable. The estimates are based on surveys, performed by the South Coast Air Quality Management District and the Sacramento Metropolitan Air Quality Management District of typical construction projects, which provide a basis for scaling equipment needs and schedule with a project's size. Air emission estimates in CalEEMod are based on the duration of construction phases; construction equipment type, quantity, and usage; grading area; season; and ambient temperature, among other parameters. Construction emissions were modeled

with construction beginning in June 2019 and lasting approximately two years. Assuming a construction start date of June 2019 is conservative, as continued implementation of regulations for off-road equipment, the primary construction emission source, would reduce emissions from these sources over time. Thus, because construction would start June 2019 at the soonest, actual emissions would be equal to or less than those summarized below. Construction equipment included in the emission calculations was based on construction equipment required for the adjacent Heritage Bluffs Project, which required construction and blasting activities that would be similar to the project.

Table 4 shows the total projected construction maximum daily emission levels for each criteria pollutant. The CalEEMod output files for construction emissions are contained in Attachment 1.

**Table 4**
**Summary of Worst-case Construction Emissions**
**(pounds per day)**

| | Emissions | | | | | |
|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| Site Preparation | 4 | 46 | 23 | <1 | 21 | 12 |
| Grading/Blasting | 13 | 120 | 87 | <1 | 15 | 10 |
| Building Construction | 2 | 20 | 18 | <1 | 1 | 1 |
| Paving | 1 | 13 | 15 | <1 | 1 | 1 |
| Architectural Coatings | 24 | 2 | 2 | <1 | <1 | <1 |
| **Maximum Daily Emissions** | **24** | **120** | **87** | **<1** | **21** | **12** |
| *Significance Threshold* | *250* | *250* | *550* | *250* | *100* | *67* |

ROG = reactive organic gases; $NO_X$ = nitrogen oxide; CO = carbon monoxide; $SO_X$ = sulfur oxide; $PM_{10}$ = particulate matter less than 10 microns;
$PM_{2.5}$ = particulate matter less than 2.5 microns

Standard dust control measures would be implemented as a part of project construction in accordance with SDAPCD rules and regulations. Fugitive dust emissions were calculated using CalEEMod default values, and did not take into account the required dust control measures. Additionally, the area around the blast site would be watered the day before and the morning of the blast in order to dampen the dust. Thus, the emissions shown in Table 4 are conservative.

For assessing the significance of the air quality emissions resulting during construction of the project, the construction emissions were compared to the significance thresholds shown in Table 4. As shown in Table 4, maximum daily construction emissions associated with the project are projected to be less than the applicable thresholds for all criteria pollutants. Construction-related air quality impacts would be less than significant.

## 5.0 IMPACT ANALYSIS

*1. Would the project obstruct or conflict with the implementation of the San Diego RAQS?*

The RAQS is the applicable regional air quality plan that sets forth the SDAPCD's strategies for achieving the NAAQS and CAAQS. The SDAB is designated a non-attainment area for the federal and state ozone standard. Accordingly, the RAQS was developed to identify feasible emission control measures and provide expeditious progress toward attaining the standards for ozone. The two pollutants addressed in the RAQS are ROG and $NO_X$, which are precursors to the formation of ozone. Projected increases in motor vehicle usage, population, and growth create challenges in controlling emissions and, by extension, to maintaining and improving air quality. The RAQS was most recently adopted in 2016.

The growth projections used by the SDAPCD to develop the RAQS emissions budgets are based on the population, vehicle trends, and land use plans developed in general plans and used by SANDAG in the development of the regional transportation plans and sustainable communities strategy. As such, projects that propose development that is consistent with the growth anticipated by SANDAG's growth projections and/or the General Plan would not conflict with the RAQS. In the event that a project would propose development that is less dense than anticipated by the growth projections, the project would likewise be consistent with the RAQS. In the event a project proposes development that is greater than anticipated in the growth projections, further analysis would be warranted to determine if the project would exceed the growth projections used in the RAQS for the specific subregional area.

The density of the project would be less than what was assumed and analyzed for the property under the Subarea Plan EIR. The project would include the transfer of the remaining density (14 market rate units and 19 affordable housing units) to the Black Mountain Ranch North Village Town Center, pursuant to the density transfer allowances established by the Subarea Plan. Consequently, the project would be consistent with the Transportation Phasing Plan for buildout of the Subarea Plan, and would be consistent with the growth assumptions assumed in the RAQS, and impacts would be less than significant.

2. *Would the project result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

As shown in Table 4, project construction would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as construction emissions would be well below these limits, the project would not result in regional emissions that would exceed the NAAQS or CAAQS or contribute to existing violations.

Long-term emissions of regional air pollutants occur from operational sources. As discussed under threshold 1 above, the project would be consistent with the Transportation Phasing Plan for the Subarea Plan. Consequently, the project would not generate any new long-term emissions beyond those analyzed in the Subarea Plan EIR. Therefore, no impacts associated with operational emissions would occur.

3. *Would the project expose sensitive receptors to substantial pollutant concentration including air toxics such as diesel particulates?*

Sensitive land uses include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities. There are residential uses located northeast of the project site.

Construction of the project and associated infrastructure would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Construction of the project would result in the generation of diesel-exhaust diesel particulate matter (DPM) emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities and on-road diesel equipment used to bring materials to and from the project site.

Generation of DPM from construction projects typically occurs in a single area for a short period. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Thus, if the duration of proposed construction activities near any specific sensitive receptor were two years, the exposure would be less than 6 percent of the total exposure period used for health risk calculation.

Therefore, because of the limited size of the project and the short duration of construction, DPM generated by construction is not expected to create conditions where the probability is greater than 10 in 1 million of contracting cancer for the Maximally Exposed Individual or to generate ground-level concentrations of non-

carcinogenic toxic air contaminants that exceed a Hazard Index greater than 1 for the Maximally Exposed Individual. Additionally, with ongoing implementation of U.S. EPA and CARB requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be substantially reduced over time.

Soils within the regional area are known to possess naturally occurring subsurface arsenic. Consequently, dust generated from blasting operations required during project construction would have the potential to release naturally occurring subsurface arsenic, which could result in short-term exposure that may result in a significant impact (AQ-1). The construction contractor, under the direction of Geocon, would implement the following mitigation measures to reduce potential impacts associated with the release of naturally occurring subsurface arsenic to a level less than significant.

**MM-AQ-1a: Arsenic Testing Protocol in Areas Requiring Blasting**

Geocon shall obtain periodic random samples from select air-track borehole spoils or the ground surface over the course of the blasting program. The number of samples shall vary and be based on judgement depending on the size of the shot. The samples shall be assigned for analysis of arsenic using U.S. Environmental Protection Agency Test Method 6010B with a reporting limit of 1.0 milligram per kilogram. The sampling shall be performed under the direct supervision of Geocon's Project Manager and Professional Geologist.

**MM-AQ-1b: Blasting Dust Mitigation Plan**

The following protocols shall be performed to minimize the generation of visible dust during the hard rock blasting events:

- The areas shall be heavily watered prior to the planned blasting. The amount of water applied shall depend on the size of the shot and composition of the materials exposed at the top of the shot (i.e., topsoil vs. hard rock).
- A water truck shall be dedicated to pre-wet the ground surface.
- Detergent, if necessary, shall be added to the water truck to reduce the surface tension of the water and promote soaking into the surface materials. The water used shall be confined to the area of the shot and not be allowed to migrate out of the work limits. Confinement of the water shall be achieved through use of earthen berms, ditches, or other containment features that shall prevent migration of the water outside the work area.
- Once the boreholes are loaded with blasting agent, a final soaking shall occur just prior to the shot.

Therefore, project construction would not expose sensitive receptors to substantial pollutant concentration, including air toxics such as diesel particulates, and impacts associated with naturally occurring subsurface arsenic would be mitigated to a level less than significant.

*4. Would the project create objectionable odors affecting a substantial number of people?*

The project does not include heavy industrial or agricultural uses that are typically associated with odor complaints. During construction, diesel equipment may generate some nuisance odors. Sensitive receptors near the project site include residential uses; however, exposure to odors associated with project construction would be short term and temporary in nature. Construction of the project is not expected to generate significant objectionable odors affecting a substantial number of people, and impacts would be less than significant.

*5. Would the project exceed 100 pounds per day of Particulate Matter (PM)(dust)?*

As shown in Table 4 and discussed under threshold 2 above, emissions of $PM_{10}$ from construction would be below the City's significance threshold of 100 pounds per day. Therefore, impacts related to project-generated PM would be less than significant.

*6. Substantial alteration of air movement in the area of the project?*

Local topographic variation, such as that caused by the height and shape of a row of buildings, can influence air movement in a given location (Boston Redevelopment Authority 1986). Alterations in the built environment may increase the dispersion of air pollutants or cause stagnation that may result in a harmful concentration of air pollutants. Urban canyons are places where the street is flanked by buildings on both sides creating a canyon-like environment. Where urban canyons are oriented perpendicular to the prevailing wind patterns, the likelihood of restricted air movement and associated pollutant accumulation may increase.

Roadways in the vicinity of the project include Carmel Valley Road to the north. Development in the vicinity of the project includes single-family residences and open space. Buildings do not form contiguous or near-contiguous frontage along roadways, and development in the area is not dense enough to form an urban canyon. Therefore, the project is not anticipated to contribute to a substantial alteration of air movement that would affect air quality, and impacts would be less than significant.

If you have any questions about the results of this analysis, please contact me at jfleming@reconenvironmental.com or (619) 308-9333 x177.

Sincerely,

Jessica Fleming

Jessica Fleming
Associate Environmental Analyst

JLF:jg:sh

Attachment

## 6.0 REFERENCES CITED

California Air Pollution Control Officers Association (CAPCOA)

2017 California Emissions Estimator model (CalEEMod). User's Guide Version 2016.3.2. October, 2017.

California Air Resources Board (CARB)

2016 Ambient Air Quality Standards. California Air Resources Board. May 4.

2018 California Air Quality Data Statistics. California Air Resources Board Internet Site. http://www.arb.ca.gov/adam/welcome.html. Top 4 Summary and Hourly Listing. Accessed January 2, 2018.

Office of Environmental Health Hazard Assessment (OEHHA)

2015 Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments (Guidance Manual), February.

San Diego Air Pollution Control District (SDAPCD)

2017 2016 Annual Air Quality Monitoring Network Plan. SDAPCD Monitoring and Technical Services Division. Posted for Public Viewing April 1, 2017. Submitted for EPA Review June 30, 2017.

# ATTACHMENT 1

# 8958 Avion Construction

**San Diego County APCD Air District, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Single Family Housing | 84.00 | Dwelling Unit | 16.15 | 151,200.00 | 240 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.6 | **Precipitation Freq (Days)** | 40 |
| **Climate Zone** | 13 | | | **Operational Year** | 2020 |
| **Utility Company** | San Diego Gas & Electric | | | | |
| **CO2 Intensity (lb/MWhr)** | 720.49 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

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

Project Characteristics - June 2019

Land Use - 16.15 acre grading footprint

Construction Phase - ~8 months grading

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment consistent with Heritage

Off-road Equipment -

Trips and VMT -

Grading - 0 cy import/export

Architectural Coating - SDAPCD Rule 67.0.1

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblArchitecturalCoating | EF_Residential_Exterior | 250.00 | 150.00 |
| tblArchitecturalCoating | EF_Residential_Interior | 250.00 | 100.00 |
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 40 | 0 |
| tblConstructionPhase | NumDays | 20.00 | 90.00 |
| tblConstructionPhase | NumDays | 30.00 | 175.00 |
| tblLandUse | LotAcreage | 27.27 | 16.15 |
| tblOffRoadEquipment | OffRoadEquipmentType | | Bore/Drill Rigs |
| tblOffRoadEquipment | OffRoadEquipmentType | | Concrete/Industrial Saws |
| tblOffRoadEquipment | OffRoadEquipmentType | | Crushing/Proc. Equipment |
| tblOffRoadEquipment | OffRoadEquipmentType | | Generator Sets |
| tblOffRoadEquipment | OffRoadEquipmentType | | Off-Highway Trucks |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 3.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 4.00 |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblProjectCharacteristics | OperationalYear | 2018 | 2020 |

## 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 | | | | | |
| 2019 | 13.2485 | 145.6794 | 87.1420 | 0.1852 | 18.2141 | 6.4120 | 20.6055 | 9.9699 | 5.9580 | 12.1700 | 0.0000 | 18,256.7883 | 18,256.7883 | 5.2699 | 0.0000 | 18,388.5363 |
| 2020 | 12.4463 | 134.5079 | 83.8940 | 0.1853 | 8.8376 | 5.8430 | 14.6806 | 3.6401 | 5.4263 | 9.0664 | 0.0000 | 17,905.3748 | 17,905.3748 | 5.2582 | 0.0000 | 18,036.8294 |
| 2021 | 23.8948 | 18.4218 | 17.5832 | 0.0316 | 0.3074 | 0.9623 | 1.2697 | 0.0829 | 0.9048 | 0.9877 | 0.0000 | 3,038.1655 | 3,038.1655 | 0.7172 | 0.0000 | 3,054.2281 |
| **Maximum** | **23.8948** | **145.6794** | **87.1420** | **0.1853** | **18.2141** | **6.4120** | **20.6055** | **9.9699** | **5.9580** | **12.1700** | **0.0000** | **18,256.7883** | **18,256.7883** | **5.2699** | **0.0000** | **18,388.5363** |

### 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 | | | | | |
| 2019 | 13.2485 | 119.5905 | 87.1420 | 0.1852 | 18.2141 | 6.4120 | 20.6055 | 9.9699 | 5.9580 | 12.1700 | 0.0000 | 18,256.7883 | 18,256.7883 | 5.2699 | 0.0000 | 18,388.5363 |
| 2020 | 12.4463 | 110.4361 | 83.8940 | 0.1853 | 8.8376 | 5.8430 | 14.6806 | 3.6401 | 5.4263 | 9.0664 | 0.0000 | 17,905.3747 | 17,905.3747 | 5.2582 | 0.0000 | 18,036.8294 |
| 2021 | 23.8948 | 18.4218 | 17.5832 | 0.0316 | 0.3074 | 0.9623 | 1.2697 | 0.0829 | 0.9048 | 0.9877 | 0.0000 | 3,038.1655 | 3,038.1655 | 0.7172 | 0.0000 | 3,054.2281 |
| **Maximum** | **23.8948** | **119.5905** | **87.1420** | **0.1853** | **18.2141** | **6.4120** | **20.6055** | **9.9699** | **5.9580** | **12.1700** | **0.0000** | **18,256.7883** | **18,256.7883** | **5.2699** | **0.0000** | **18,388.5363** |

8958 Avion Construction - San Diego County APCD Air District, Winter

| | ROG | NOx | 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 | 0.00 | 16.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## 2.2 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 | 133.2966 | 2.5909 | 165.6381 | 0.2879 | | 22.2874 | 22.2874 | | 22.2874 | 22.2874 | 2,332.8254 | 990.8313 | 3,323.6567 | 2.1650 | 0.1835 | 3,432.4625 |
| Energy | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |
| Mobile | 1.5469 | 6.7527 | 18.3686 | 0.0586 | 5.0403 | 0.0598 | 5.1001 | 1.3472 | 0.0561 | 1.4034 | | 5,947.5208 | 5,947.5208 | 0.3298 | | 5,955.7648 |
| **Total** | **134.9142** | **9.9479** | **184.2638** | **0.3503** | **5.0403** | **22.3960** | **27.4364** | **1.3472** | **22.3924** | **23.7396** | **2,332.8254** | **7,709.7862** | **10,042.6116** | **2.5095** | **0.1976** | **10,164.2456** |

### 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 | 133.2966 | 2.5909 | 165.6381 | 0.2879 | | 22.2874 | 22.2874 | | 22.2874 | 22.2874 | 2,332.8254 | 990.8313 | 3,323.6567 | 2.1650 | 0.1835 | 3,432.4625 |
| Energy | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |
| Mobile | 1.5469 | 6.7527 | 18.3686 | 0.0586 | 5.0403 | 0.0598 | 5.1001 | 1.3472 | 0.0561 | 1.4034 | | 5,947.5208 | 5,947.5208 | 0.3298 | | 5,955.7648 |
| **Total** | **134.9142** | **9.9479** | **184.2638** | **0.3503** | **5.0403** | **22.3960** | **27.4364** | **1.3472** | **22.3924** | **23.7396** | **2,332.8254** | **7,709.7862** | **10,042.6116** | **2.5095** | **0.1976** | **10,164.2456** |

| | ROG | NOx | 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** | **0.00** | **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 | Site Preparation | Site Preparation | 6/3/2019 | 6/14/2019 | 5 | 10 | |
| 2 | Grading | Grading | 6/15/2019 | 2/14/2020 | 5 | 175 | |
| 3 | Building Construction | Building Construction | 2/15/2020 | 4/9/2021 | 5 | 300 | |
| 4 | Paving | Paving | 4/10/2021 | 5/7/2021 | 5 | 20 | |
| 5 | Architectural Coating | Architectural Coating | 5/8/2021 | 9/10/2021 | 5 | 90 | |

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

**Acres of Grading (Grading Phase): 437.5**

**Acres of Paving: 0**

**Residential Indoor: 306,180; Residential Outdoor: 102,060; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

8958 Avion Construction - San Diego County APCD Air District, Winter

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Grading | Excavators | 2 | 8.00 | 158 | 0.38 |
| Grading | Graders | 2 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Grading | Scrapers | 4 | 8.00 | 367 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 7.00 | 231 | 0.29 |
| Building Construction | Forklifts | 3 | 8.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 3 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 1 | 8.00 | 46 | 0.45 |
| Paving | Pavers | 2 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 2 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Grading | Bore/Drill Rigs | 3 | 8.00 | 221 | 0.50 |
| Grading | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Grading | Crushing/Proc. Equipment | 1 | 8.00 | 85 | 0.78 |
| Grading | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Grading | Off-Highway Trucks | 1 | 8.00 | 402 | 0.38 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 7 | 18.00 | 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 |
| Building Construction | 9 | 30.00 | 9.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 6.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 18.0663 | 0.0000 | 18.0663 | 9.9307 | 0.0000 | 9.9307 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.3350 | 45.5727 | 22.0630 | 0.0380 | | 2.3904 | 2.3904 | | 2.1991 | 2.1991 | | 3,766.4529 | 3,766.4529 | 1.1917 | | 3,796.2445 |
| **Total** | **4.3350** | **45.5727** | **22.0630** | **0.0380** | **18.0663** | **2.3904** | **20.4566** | **9.9307** | **2.1991** | **12.1298** | | **3,766.4529** | **3,766.4529** | **1.1917** | | **3,796.2445** |

## 3.2 Site Preparation - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | 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 | 0.0799 | 0.0554 | 0.5263 | 1.4800e-003 | 0.1479 | 1.0500e-003 | 0.1489 | 0.0392 | 9.7000e-004 | 0.0402 | | 147.0445 | 147.0445 | 4.7400e-003 | | 147.1631 |
| **Total** | **0.0799** | **0.0554** | **0.5263** | **1.4800e-003** | **0.1479** | **1.0500e-003** | **0.1489** | **0.0392** | **9.7000e-004** | **0.0402** | | **147.0445** | **147.0445** | **4.7400e-003** | | **147.1631** |

### 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 | | | | | 18.0663 | 0.0000 | 18.0663 | 9.9307 | 0.0000 | 9.9307 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.3350 | 45.5727 | 22.0630 | 0.0380 | | 2.3904 | 2.3904 | | 2.1991 | 2.1991 | 0.0000 | 3,766.4529 | 3,766.4529 | 1.1917 | | 3,796.2445 |
| **Total** | **4.3350** | **45.5727** | **22.0630** | **0.0380** | **18.0663** | **2.3904** | **20.4566** | **9.9307** | **2.1991** | **12.1298** | **0.0000** | **3,766.4529** | **3,766.4529** | **1.1917** | | **3,796.2445** |

## 3.2 Site Preparation - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | 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 | 0.0799 | 0.0554 | 0.5263 | 1.4800e-003 | 0.1479 | 1.0500e-003 | 0.1489 | 0.0392 | 9.7000e-004 | 0.0402 | | 147.0445 | 147.0445 | 4.7400e-003 | | 147.1631 |
| **Total** | **0.0799** | **0.0554** | **0.5263** | **1.4800e-003** | **0.1479** | **1.0500e-003** | **0.1489** | **0.0392** | **9.7000e-004** | **0.0402** | | **147.0445** | **147.0445** | **4.7400e-003** | | **147.1631** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 8.6733 | 0.0000 | 8.6733 | 3.5965 | 0.0000 | 3.5965 | | | 0.0000 | | | 0.0000 |
| Off-Road | 13.1597 | 145.6178 | 86.5573 | 0.1836 | | 6.4109 | 6.4109 | | 5.9570 | 5.9570 | | 18,093.4056 | 18,093.4056 | 5.2647 | | 18,225.0218 |
| **Total** | **13.1597** | **145.6178** | **86.5573** | **0.1836** | **8.6733** | **6.4109** | **15.0842** | **3.5965** | **5.9570** | **9.5535** | | **18,093.4056** | **18,093.4056** | **5.2647** | | **18,225.0218** |

## 3.3 Grading - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | 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 | 0.0888 | 0.0616 | 0.5848 | 1.6400e-003 | 0.1643 | 1.1700e-003 | 0.1655 | 0.0436 | 1.0800e-003 | 0.0447 | | 163.3828 | 163.3828 | 5.2700e-003 | | 163.5146 |
| **Total** | **0.0888** | **0.0616** | **0.5848** | **1.6400e-003** | **0.1643** | **1.1700e-003** | **0.1655** | **0.0436** | **1.0800e-003** | **0.0447** | | **163.3828** | **163.3828** | **5.2700e-003** | | **163.5146** |

### 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 | | | | | 8.6733 | 0.0000 | 8.6733 | 3.5965 | 0.0000 | 3.5965 | | | 0.0000 | | | 0.0000 |
| Off-Road | 13.1597 | 119.5289 | 86.5573 | 0.1836 | | 6.4109 | 6.4109 | | 5.9570 | 5.9570 | 0.0000 | 18,093.4056 | 18,093.4056 | 5.2647 | | 18,225.0218 |
| **Total** | **13.1597** | **119.5289** | **86.5573** | **0.1836** | **8.6733** | **6.4109** | **15.0842** | **3.5965** | **5.9570** | **9.5535** | **0.0000** | **18,093.4056** | **18,093.4056** | **5.2647** | | **18,225.0218** |

## 3.3 Grading - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | 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 | 0.0888 | 0.0616 | 0.5848 | 1.6400e-003 | 0.1643 | 1.1700e-003 | 0.1655 | 0.0436 | 1.0800e-003 | 0.0447 | | 163.3828 | 163.3828 | 5.2700e-003 | | 163.5146 |
| **Total** | **0.0888** | **0.0616** | **0.5848** | **1.6400e-003** | **0.1643** | **1.1700e-003** | **0.1655** | **0.0436** | **1.0800e-003** | **0.0447** | | **163.3828** | **163.3828** | **5.2700e-003** | | **163.5146** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 8.6733 | 0.0000 | 8.6733 | 3.5965 | 0.0000 | 3.5965 | | | 0.0000 | | | 0.0000 |
| Off-Road | 12.3632 | 134.4523 | 83.3595 | 0.1837 | | 5.8418 | 5.8418 | | 5.4253 | 5.4253 | | 17,747.1484 | 17,747.1484 | 5.2534 | | 17,878.4839 |
| **Total** | **12.3632** | **134.4523** | **83.3595** | **0.1837** | **8.6733** | **5.8418** | **14.5151** | **3.5965** | **5.4253** | **9.0218** | | **17,747.1484** | **17,747.1484** | **5.2534** | | **17,878.4839** |

## 3.3 Grading - 2020

### 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 | 0.0831 | 0.0555 | 0.5345 | 1.5900e-003 | 0.1643 | 1.1500e-003 | 0.1655 | 0.0436 | 1.0600e-003 | 0.0446 | | 158.2264 | 158.2264 | 4.7600e-003 | | 158.3455 |
| **Total** | **0.0831** | **0.0555** | **0.5345** | **1.5900e-003** | **0.1643** | **1.1500e-003** | **0.1655** | **0.0436** | **1.0600e-003** | **0.0446** | | **158.2264** | **158.2264** | **4.7600e-003** | | **158.3455** |

### 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 | | | | | 8.6733 | 0.0000 | 8.6733 | 3.5965 | 0.0000 | 3.5965 | | | 0.0000 | | | 0.0000 |
| Off-Road | 12.3632 | 110.3806 | 83.3595 | 0.1837 | | 5.8418 | 5.8418 | | 5.4253 | 5.4253 | 0.0000 | 17,747.1484 | 17,747.1484 | 5.2534 | | 17,878.4839 |
| **Total** | **12.3632** | **110.3806** | **83.3595** | **0.1837** | **8.6733** | **5.8418** | **14.5151** | **3.5965** | **5.4253** | **9.0218** | **0.0000** | **17,747.1484** | **17,747.1484** | **5.2534** | | **17,878.4839** |

## 3.3 Grading - 2020

**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 | 0.0831 | 0.0555 | 0.5345 | 1.5900e-003 | 0.1643 | 1.1500e-003 | 0.1655 | 0.0436 | 1.0600e-003 | 0.0446 | | 158.2264 | 158.2264 | 4.7600e-003 | | 158.3455 |
| **Total** | **0.0831** | **0.0555** | **0.5345** | **1.5900e-003** | **0.1643** | **1.1500e-003** | **0.1655** | **0.0436** | **1.0600e-003** | **0.0446** | | **158.2264** | **158.2264** | **4.7600e-003** | | **158.3455** |

## 3.4 Building Construction - 2020

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1198 | 19.1860 | 16.8485 | 0.0269 | | 1.1171 | 1.1171 | | 1.0503 | 1.0503 | | 2,553.0631 | 2,553.0631 | 0.6229 | | 2,568.6345 |
| **Total** | **2.1198** | **19.1860** | **16.8485** | **0.0269** | | **1.1171** | **1.1171** | | **1.0503** | **1.0503** | | **2,553.0631** | **2,553.0631** | **0.6229** | | **2,568.6345** |

## 3.4 Building Construction - 2020

### 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 | 0.0352 | 1.0140 | 0.2869 | 2.4000e-003 | 0.0609 | 5.0600e-003 | 0.0660 | 0.0175 | 4.8400e-003 | 0.0224 | | 257.8160 | 257.8160 | 0.0208 | | 258.3346 |
| Worker | 0.1247 | 0.0833 | 0.8017 | 2.3800e-003 | 0.2464 | 1.7300e-003 | 0.2482 | 0.0654 | 1.5900e-003 | 0.0670 | | 237.3396 | 237.3396 | 7.1500e-003 | | 237.5182 |
| **Total** | **0.1599** | **1.0973** | **1.0887** | **4.7800e-003** | **0.3074** | **6.7900e-003** | **0.3142** | **0.0829** | **6.4300e-003** | **0.0893** | | **495.1556** | **495.1556** | **0.0279** | | **495.8529** |

### 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 | 2.1198 | 19.1860 | 16.8485 | 0.0269 | | 1.1171 | 1.1171 | | 1.0503 | 1.0503 | 0.0000 | 2,553.0631 | 2,553.0631 | 0.6229 | | 2,568.6345 |
| **Total** | **2.1198** | **19.1860** | **16.8485** | **0.0269** | | **1.1171** | **1.1171** | | **1.0503** | **1.0503** | **0.0000** | **2,553.0631** | **2,553.0631** | **0.6229** | | **2,568.6345** |

## 3.4 Building Construction - 2020

**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 | 0.0352 | 1.0140 | 0.2869 | 2.4000e-003 | 0.0609 | 5.0600e-003 | 0.0660 | 0.0175 | 4.8400e-003 | 0.0224 | | 257.8160 | 257.8160 | 0.0208 | | 258.3346 |
| Worker | 0.1247 | 0.0833 | 0.8017 | 2.3800e-003 | 0.2464 | 1.7300e-003 | 0.2482 | 0.0654 | 1.5900e-003 | 0.0670 | | 237.3396 | 237.3396 | 7.1500e-003 | | 237.5182 |
| **Total** | **0.1599** | **1.0973** | **1.0887** | **4.7800e-003** | **0.3074** | **6.7900e-003** | **0.3142** | **0.0829** | **6.4300e-003** | **0.0893** | | **495.1556** | **495.1556** | **0.0279** | | **495.8529** |

## 3.4 Building Construction - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.9009 | 17.4321 | 16.5752 | 0.0269 | | 0.9586 | 0.9586 | | 0.9013 | 0.9013 | | 2,553.3639 | 2,553.3639 | 0.6160 | | 2,568.7643 |
| **Total** | **1.9009** | **17.4321** | **16.5752** | **0.0269** | | **0.9586** | **0.9586** | | **0.9013** | **0.9013** | | **2,553.3639** | **2,553.3639** | **0.6160** | | **2,568.7643** |

## 3.4 Building Construction - 2021

### 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 | 0.0287 | 0.9140 | 0.2601 | 2.3800e-003 | 0.0609 | 2.0000e-003 | 0.0629 | 0.0175 | 1.9200e-003 | 0.0195 | | 255.4374 | 255.4374 | 0.0199 | | 255.9349 |
| Worker | 0.1177 | 0.0757 | 0.7480 | 2.3000e-003 | 0.2464 | 1.7000e-003 | 0.2482 | 0.0654 | 1.5700e-003 | 0.0669 | | 229.3643 | 229.3643 | 6.5900e-003 | | 229.5290 |
| **Total** | **0.1464** | **0.9897** | **1.0080** | **4.6800e-003** | **0.3074** | **3.7000e-003** | **0.3111** | **0.0829** | **3.4900e-003** | **0.0864** | | **484.8016** | **484.8016** | **0.0265** | | **485.4639** |

### 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 | 1.9009 | 17.4321 | 16.5752 | 0.0269 | | 0.9586 | 0.9586 | | 0.9013 | 0.9013 | 0.0000 | 2,553.3639 | 2,553.3639 | 0.6160 | | 2,568.7643 |
| **Total** | **1.9009** | **17.4321** | **16.5752** | **0.0269** | | **0.9586** | **0.9586** | | **0.9013** | **0.9013** | **0.0000** | **2,553.3639** | **2,553.3639** | **0.6160** | | **2,568.7643** |

## 3.4 Building Construction - 2021

**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 | 0.0287 | 0.9140 | 0.2601 | 2.3800e-003 | 0.0609 | 2.0000e-003 | 0.0629 | 0.0175 | 1.9200e-003 | 0.0195 | | 255.4374 | 255.4374 | 0.0199 | | 255.9349 |
| Worker | 0.1177 | 0.0757 | 0.7480 | 2.3000e-003 | 0.2464 | 1.7000e-003 | 0.2482 | 0.0654 | 1.5700e-003 | 0.0669 | | 229.3643 | 229.3643 | 6.5900e-003 | | 229.5290 |
| **Total** | **0.1464** | **0.9897** | **1.0080** | **4.6800e-003** | **0.3074** | **3.7000e-003** | **0.3111** | **0.0829** | **3.4900e-003** | **0.0864** | | **484.8016** | **484.8016** | **0.0265** | | **485.4639** |

## 3.5 Paving - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.2556 | 12.9191 | 14.6532 | 0.0228 | | 0.6777 | 0.6777 | | 0.6235 | 0.6235 | | 2,207.2109 | 2,207.2109 | 0.7139 | | 2,225.0573 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.2556** | **12.9191** | **14.6532** | **0.0228** | | **0.6777** | **0.6777** | | **0.6235** | **0.6235** | | **2,207.2109** | **2,207.2109** | **0.7139** | | **2,225.0573** |

## 3.5 Paving - 2021

### 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 | 0.0588 | 0.0378 | 0.3740 | 1.1500e-003 | 0.1232 | 8.5000e-004 | 0.1241 | 0.0327 | 7.8000e-004 | 0.0335 | | 114.6821 | 114.6821 | 3.2900e-003 | | 114.7645 |
| **Total** | **0.0588** | **0.0378** | **0.3740** | **1.1500e-003** | **0.1232** | **8.5000e-004** | **0.1241** | **0.0327** | **7.8000e-004** | **0.0335** | | **114.6821** | **114.6821** | **3.2900e-003** | | **114.7645** |

### 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 | 1.2556 | 12.9191 | 14.6532 | 0.0228 | | 0.6777 | 0.6777 | | 0.6235 | 0.6235 | 0.0000 | 2,207.2109 | 2,207.2109 | 0.7139 | | 2,225.0573 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.2556** | **12.9191** | **14.6532** | **0.0228** | | **0.6777** | **0.6777** | | **0.6235** | **0.6235** | **0.0000** | **2,207.2109** | **2,207.2109** | **0.7139** | | **2,225.0573** |

## 3.5 Paving - 2021

**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 | 0.0588 | 0.0378 | 0.3740 | 1.1500e-003 | 0.1232 | 8.5000e-004 | 0.1241 | 0.0327 | 7.8000e-004 | 0.0335 | | 114.6821 | 114.6821 | 3.2900e-003 | | 114.7645 |
| **Total** | **0.0588** | **0.0378** | **0.3740** | **1.1500e-003** | **0.1232** | **8.5000e-004** | **0.1241** | **0.0327** | **7.8000e-004** | **0.0335** | | **114.6821** | **114.6821** | **3.2900e-003** | | **114.7645** |

## 3.6 Architectural Coating - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 23.6524 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2189 | 1.5268 | 1.8176 | 2.9700e-003 | | 0.0941 | 0.0941 | | 0.0941 | 0.0941 | | 281.4481 | 281.4481 | 0.0193 | | 281.9309 |
| **Total** | **23.8713** | **1.5268** | **1.8176** | **2.9700e-003** | | **0.0941** | **0.0941** | | **0.0941** | **0.0941** | | **281.4481** | **281.4481** | **0.0193** | | **281.9309** |

## 3.6 Architectural Coating - 2021

### 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 | 0.0235 | 0.0151 | 0.1496 | 4.6000e-004 | 0.0493 | 3.4000e-004 | 0.0496 | 0.0131 | 3.1000e-004 | 0.0134 | | 45.8729 | 45.8729 | 1.3200e-003 | | 45.9058 |
| **Total** | **0.0235** | **0.0151** | **0.1496** | **4.6000e-004** | **0.0493** | **3.4000e-004** | **0.0496** | **0.0131** | **3.1000e-004** | **0.0134** | | **45.8729** | **45.8729** | **1.3200e-003** | | **45.9058** |

### 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 | | | | | |
| Archit. Coating | 23.6524 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2189 | 1.5268 | 1.8176 | 2.9700e-003 | | 0.0941 | 0.0941 | | 0.0941 | 0.0941 | 0.0000 | 281.4481 | 281.4481 | 0.0193 | | 281.9309 |
| **Total** | **23.8713** | **1.5268** | **1.8176** | **2.9700e-003** | | **0.0941** | **0.0941** | | **0.0941** | **0.0941** | **0.0000** | **281.4481** | **281.4481** | **0.0193** | | **281.9309** |

### 3.6 Architectural Coating - 2021

**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 | 0.0235 | 0.0151 | 0.1496 | 4.6000e-004 | 0.0493 | 3.4000e-004 | 0.0496 | 0.0131 | 3.1000e-004 | 0.0134 | | 45.8729 | 45.8729 | 1.3200e-003 | | 45.9058 |
| **Total** | **0.0235** | **0.0151** | **0.1496** | **4.6000e-004** | **0.0493** | **3.4000e-004** | **0.0496** | **0.0131** | **3.1000e-004** | **0.0134** | | **45.8729** | **45.8729** | **1.3200e-003** | | **45.9058** |

## 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 | 1.5469 | 6.7527 | 18.3686 | 0.0586 | 5.0403 | 0.0598 | 5.1001 | 1.3472 | 0.0561 | 1.4034 | | 5,947.5208 | 5,947.5208 | 0.3298 | | 5,955.7648 |
| Unmitigated | 1.5469 | 6.7527 | 18.3686 | 0.0586 | 5.0403 | 0.0598 | 5.1001 | 1.3472 | 0.0561 | 1.4034 | | 5,947.5208 | 5,947.5208 | 0.3298 | | 5,955.7648 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Single Family Housing | 799.68 | 832.44 | 724.08 | 2,265,855 | 2,265,855 |
| Total | 799.68 | 832.44 | 724.08 | 2,265,855 | 2,265,855 |

## 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 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 | 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 | 0.588316 | 0.042913 | 0.184449 | 0.110793 | 0.017294 | 0.005558 | 0.015534 | 0.023021 | 0.001902 | 0.002024 | 0.006181 | 0.000745 | 0.001271 |

# 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 | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |
| NaturalGas Unmitigated | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |

## 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 | | | | | |
| Single Family Housing | 6557.19 | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |
| **Total** | | **0.0707** | **0.6043** | **0.2571** | **3.8600e-003** | | **0.0489** | **0.0489** | | **0.0489** | **0.0489** | | **771.4341** | **771.4341** | **0.0148** | **0.0141** | **776.0183** |

### 5.2 Energy by Land Use - NaturalGas

**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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Single Family Housing | 6.55719 | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |
| **Total** | | **0.0707** | **0.6043** | **0.2571** | **3.8600e-003** | | **0.0489** | **0.0489** | | **0.0489** | **0.0489** | | **771.4341** | **771.4341** | **0.0148** | **0.0141** | **776.0183** |

## 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 | 133.2966 | 2.5909 | 165.6381 | 0.2879 | | 22.2874 | 22.2874 | | 22.2874 | 22.2874 | 2,332.8254 | 990.8313 | 3,323.6567 | 2.1650 | 0.1835 | 3,432.4625 |
| Unmitigated | 133.2966 | 2.5909 | 165.6381 | 0.2879 | | 22.2874 | 22.2874 | | 22.2874 | 22.2874 | 2,332.8254 | 990.8313 | 3,323.6567 | 2.1650 | 0.1835 | 3,432.4625 |

## 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 | 1.2960 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 3.2357 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 128.5532 | 2.5105 | 158.6849 | 0.2875 | | 22.2491 | 22.2491 | | 22.2491 | 22.2491 | 2,332.8254 | 978.3529 | 3,311.1783 | 2.1528 | 0.1835 | 3,419.6799 |
| Landscaping | 0.2117 | 0.0804 | 6.9531 | 3.7000e-004 | | 0.0382 | 0.0382 | | 0.0382 | 0.0382 | | 12.4784 | 12.4784 | 0.0122 | | 12.7826 |
| **Total** | **133.2966** | **2.5909** | **165.6381** | **0.2879** | | **22.2874** | **22.2874** | | **22.2874** | **22.2874** | **2,332.8254** | **990.8313** | **3,323.6567** | **2.1650** | **0.1835** | **3,432.4625** |

### 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 1.2960 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 3.2357 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 128.5532 | 2.5105 | 158.6849 | 0.2875 | | 22.2491 | 22.2491 | | 22.2491 | 22.2491 | 2,332.8254 | 978.3529 | 3,311.1783 | 2.1528 | 0.1835 | 3,419.6799 |
| Landscaping | 0.2117 | 0.0804 | 6.9531 | 3.7000e-004 | | 0.0382 | 0.0382 | | 0.0382 | 0.0382 | | 12.4784 | 12.4784 | 0.0122 | | 12.7826 |
| **Total** | **133.2966** | **2.5909** | **165.6381** | **0.2879** | | **22.2874** | **22.2874** | | **22.2874** | **22.2874** | **2,332.8254** | **990.8313** | **3,323.6567** | **2.1650** | **0.1835** | **3,432.4625** |

## 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 |
|---|---|---|---|---|---|---|

## 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

# 8958 Avion Construction

**San Diego County APCD Air District, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Single Family Housing | 84.00 | Dwelling Unit | 16.15 | 151,200.00 | 240 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.6 | **Precipitation Freq (Days)** | 40 |
| **Climate Zone** | 13 | | | **Operational Year** | 2020 |
| **Utility Company** | San Diego Gas & Electric | | | | |
| **CO2 Intensity (lb/MWhr)** | 720.49 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

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

Project Characteristics - June 2019

Land Use - 16.15 acre grading footprint

Construction Phase - ~8 months grading

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment consistent with Heritage

Off-road Equipment -

Trips and VMT -

Grading - 0 cy import/export

Architectural Coating - SDAPCD Rule 67.0.1

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblArchitecturalCoating | EF_Residential_Exterior | 250.00 | 150.00 |
| tblArchitecturalCoating | EF_Residential_Interior | 250.00 | 100.00 |
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 40 | 0 |
| tblConstructionPhase | NumDays | 20.00 | 90.00 |
| tblConstructionPhase | NumDays | 30.00 | 175.00 |
| tblLandUse | LotAcreage | 27.27 | 16.15 |
| tblOffRoadEquipment | OffRoadEquipmentType | | Bore/Drill Rigs |
| tblOffRoadEquipment | OffRoadEquipmentType | | Concrete/Industrial Saws |
| tblOffRoadEquipment | OffRoadEquipmentType | | Crushing/Proc. Equipment |
| tblOffRoadEquipment | OffRoadEquipmentType | | Generator Sets |
| tblOffRoadEquipment | OffRoadEquipmentType | | Off-Highway Trucks |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 3.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 4.00 |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblProjectCharacteristics | OperationalYear | 2018 | 2020 |

## 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 | | | | | |
| 2019 | 13.2382 | 145.6726 | 87.1761 | 0.1853 | 18.2141 | 6.4120 | 20.6055 | 9.9699 | 5.9580 | 12.1700 | 0.0000 | 18,267.4455 | 18,267.4455 | 5.2702 | 0.0000 | 18,399.2006 |
| 2020 | 12.4366 | 134.5018 | 83.9265 | 0.1854 | 8.8376 | 5.8430 | 14.6806 | 3.6401 | 5.4263 | 9.0664 | 0.0000 | 17,915.6978 | 17,915.6978 | 5.2585 | 0.0000 | 18,047.1591 |
| 2021 | 23.8921 | 18.4160 | 17.6045 | 0.0318 | 0.3074 | 0.9623 | 1.2696 | 0.0829 | 0.9047 | 0.9876 | 0.0000 | 3,059.9129 | 3,059.9129 | 0.7174 | 0.0000 | 3,075.9560 |
| **Maximum** | **23.8921** | **145.6726** | **87.1761** | **0.1854** | **18.2141** | **6.4120** | **20.6055** | **9.9699** | **5.9580** | **12.1700** | **0.0000** | **18,267.4455** | **18,267.4455** | **5.2702** | **0.0000** | **18,399.2006** |

### 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 | | | | | |
| 2019 | 13.2382 | 119.5837 | 87.1761 | 0.1853 | 18.2141 | 6.4120 | 20.6055 | 9.9699 | 5.9580 | 12.1700 | 0.0000 | 18,267.4455 | 18,267.4455 | 5.2702 | 0.0000 | 18,399.2006 |
| 2020 | 12.4366 | 110.4301 | 83.9265 | 0.1854 | 8.8376 | 5.8430 | 14.6806 | 3.6401 | 5.4263 | 9.0664 | 0.0000 | 17,915.6978 | 17,915.6978 | 5.2585 | 0.0000 | 18,047.1591 |
| 2021 | 23.8921 | 18.4160 | 17.6045 | 0.0318 | 0.3074 | 0.9623 | 1.2696 | 0.0829 | 0.9047 | 0.9876 | 0.0000 | 3,059.9129 | 3,059.9129 | 0.7174 | 0.0000 | 3,075.9560 |
| **Maximum** | **23.8921** | **119.5837** | **87.1761** | **0.1854** | **18.2141** | **6.4120** | **20.6055** | **9.9699** | **5.9580** | **12.1700** | **0.0000** | **18,267.4455** | **18,267.4455** | **5.2702** | **0.0000** | **18,399.2006** |

8958 Avion Construction - San Diego County APCD Air District, Summer

| | ROG | NOx | 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 | 0.00 | 16.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## 2.2 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 | 133.2966 | 2.5909 | 165.6381 | 0.2879 | | 22.2874 | 22.2874 | | 22.2874 | 22.2874 | 2,332.8254 | 990.8313 | 3,323.6567 | 2.1650 | 0.1835 | 3,432.4625 |
| Energy | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |
| Mobile | 1.5896 | 6.5495 | 18.6631 | 0.0618 | 5.0403 | 0.0594 | 5.0997 | 1.3472 | 0.0557 | 1.4030 | | 6,272.1315 | 6,272.1315 | 0.3289 | | 6,280.3546 |
| **Total** | **134.9569** | **9.7447** | **184.5584** | **0.3536** | **5.0403** | **22.3956** | **27.4360** | **1.3472** | **22.3920** | **23.7392** | **2,332.8254** | **8,034.3969** | **10,367.2223** | **2.5087** | **0.1976** | **10,488.8354** |

### 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 | 133.2966 | 2.5909 | 165.6381 | 0.2879 | | 22.2874 | 22.2874 | | 22.2874 | 22.2874 | 2,332.8254 | 990.8313 | 3,323.6567 | 2.1650 | 0.1835 | 3,432.4625 |
| Energy | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |
| Mobile | 1.5896 | 6.5495 | 18.6631 | 0.0618 | 5.0403 | 0.0594 | 5.0997 | 1.3472 | 0.0557 | 1.4030 | | 6,272.1315 | 6,272.1315 | 0.3289 | | 6,280.3546 |
| **Total** | **134.9569** | **9.7447** | **184.5584** | **0.3536** | **5.0403** | **22.3956** | **27.4360** | **1.3472** | **22.3920** | **23.7392** | **2,332.8254** | **8,034.3969** | **10,367.2223** | **2.5087** | **0.1976** | **10,488.8354** |

| | ROG | NOx | 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** | **0.00** | **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 | Site Preparation | Site Preparation | 6/3/2019 | 6/14/2019 | 5 | 10 | |
| 2 | Grading | Grading | 6/15/2019 | 2/14/2020 | 5 | 175 | |
| 3 | Building Construction | Building Construction | 2/15/2020 | 4/9/2021 | 5 | 300 | |
| 4 | Paving | Paving | 4/10/2021 | 5/7/2021 | 5 | 20 | |
| 5 | Architectural Coating | Architectural Coating | 5/8/2021 | 9/10/2021 | 5 | 90 | |

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

**Acres of Grading (Grading Phase): 437.5**

**Acres of Paving: 0**

**Residential Indoor: 306,180; Residential Outdoor: 102,060; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

8958 Avion Construction - San Diego County APCD Air District, Summer

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Grading | Excavators | 2 | 8.00 | 158 | 0.38 |
| Grading | Graders | 2 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Grading | Scrapers | 4 | 8.00 | 367 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 7.00 | 231 | 0.29 |
| Building Construction | Forklifts | 3 | 8.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 3 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 1 | 8.00 | 46 | 0.45 |
| Paving | Pavers | 2 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 2 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Grading | Bore/Drill Rigs | 3 | 8.00 | 221 | 0.50 |
| Grading | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Grading | Crushing/Proc. Equipment | 1 | 8.00 | 85 | 0.78 |
| Grading | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Grading | Off-Highway Trucks | 1 | 8.00 | 402 | 0.38 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 7 | 18.00 | 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 |
| Building Construction | 9 | 30.00 | 9.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 6.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 18.0663 | 0.0000 | 18.0663 | 9.9307 | 0.0000 | 9.9307 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.3350 | 45.5727 | 22.0630 | 0.0380 | | 2.3904 | 2.3904 | | 2.1991 | 2.1991 | | 3,766.4529 | 3,766.4529 | 1.1917 | | 3,796.2445 |
| **Total** | **4.3350** | **45.5727** | **22.0630** | **0.0380** | **18.0663** | **2.3904** | **20.4566** | **9.9307** | **2.1991** | **12.1298** | | **3,766.4529** | **3,766.4529** | **1.1917** | | **3,796.2445** |

## 3.2 Site Preparation - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | 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 | 0.0707 | 0.0493 | 0.5569 | 1.5700e-003 | 0.1479 | 1.0500e-003 | 0.1489 | 0.0392 | 9.7000e-004 | 0.0402 | | 156.6359 | 156.6359 | 5.0000e-003 | | 156.7610 |
| **Total** | **0.0707** | **0.0493** | **0.5569** | **1.5700e-003** | **0.1479** | **1.0500e-003** | **0.1489** | **0.0392** | **9.7000e-004** | **0.0402** | | **156.6359** | **156.6359** | **5.0000e-003** | | **156.7610** |

### 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 | | | | | 18.0663 | 0.0000 | 18.0663 | 9.9307 | 0.0000 | 9.9307 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.3350 | 45.5727 | 22.0630 | 0.0380 | | 2.3904 | 2.3904 | | 2.1991 | 2.1991 | 0.0000 | 3,766.4529 | 3,766.4529 | 1.1917 | | 3,796.2445 |
| **Total** | **4.3350** | **45.5727** | **22.0630** | **0.0380** | **18.0663** | **2.3904** | **20.4566** | **9.9307** | **2.1991** | **12.1298** | **0.0000** | **3,766.4529** | **3,766.4529** | **1.1917** | | **3,796.2445** |

## 3.2 Site Preparation - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | 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 | 0.0707 | 0.0493 | 0.5569 | 1.5700e-003 | 0.1479 | 1.0500e-003 | 0.1489 | 0.0392 | 9.7000e-004 | 0.0402 | | 156.6359 | 156.6359 | 5.0000e-003 | | 156.7610 |
| **Total** | **0.0707** | **0.0493** | **0.5569** | **1.5700e-003** | **0.1479** | **1.0500e-003** | **0.1489** | **0.0392** | **9.7000e-004** | **0.0402** | | **156.6359** | **156.6359** | **5.0000e-003** | | **156.7610** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 8.6733 | 0.0000 | 8.6733 | 3.5965 | 0.0000 | 3.5965 | | | 0.0000 | | | 0.0000 |
| Off-Road | 13.1597 | 145.6178 | 86.5573 | 0.1836 | | 6.4109 | 6.4109 | | 5.9570 | 5.9570 | | 18,093.4056 | 18,093.4056 | 5.2647 | | 18,225.0218 |
| **Total** | **13.1597** | **145.6178** | **86.5573** | **0.1836** | **8.6733** | **6.4109** | **15.0842** | **3.5965** | **5.9570** | **9.5535** | | **18,093.4056** | **18,093.4056** | **5.2647** | | **18,225.0218** |

## 3.3 Grading - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | 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 | 0.0785 | 0.0548 | 0.6188 | 1.7500e-003 | 0.1643 | 1.1700e-003 | 0.1655 | 0.0436 | 1.0800e-003 | 0.0447 | | 174.0399 | 174.0399 | 5.5600e-003 | | 174.1789 |
| **Total** | **0.0785** | **0.0548** | **0.6188** | **1.7500e-003** | **0.1643** | **1.1700e-003** | **0.1655** | **0.0436** | **1.0800e-003** | **0.0447** | | **174.0399** | **174.0399** | **5.5600e-003** | | **174.1789** |

### 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 | | | | | 8.6733 | 0.0000 | 8.6733 | 3.5965 | 0.0000 | 3.5965 | | | 0.0000 | | | 0.0000 |
| Off-Road | 13.1597 | 119.5289 | 86.5573 | 0.1836 | | 6.4109 | 6.4109 | | 5.9570 | 5.9570 | 0.0000 | 18,093.4056 | 18,093.4056 | 5.2647 | | 18,225.0218 |
| **Total** | **13.1597** | **119.5289** | **86.5573** | **0.1836** | **8.6733** | **6.4109** | **15.0842** | **3.5965** | **5.9570** | **9.5535** | **0.0000** | **18,093.4056** | **18,093.4056** | **5.2647** | | **18,225.0218** |

## 3.3 Grading - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | 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 | 0.0785 | 0.0548 | 0.6188 | 1.7500e-003 | 0.1643 | 1.1700e-003 | 0.1655 | 0.0436 | 1.0800e-003 | 0.0447 | | 174.0399 | 174.0399 | 5.5600e-003 | | 174.1789 |
| **Total** | **0.0785** | **0.0548** | **0.6188** | **1.7500e-003** | **0.1643** | **1.1700e-003** | **0.1655** | **0.0436** | **1.0800e-003** | **0.0447** | | **174.0399** | **174.0399** | **5.5600e-003** | | **174.1789** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 8.6733 | 0.0000 | 8.6733 | 3.5965 | 0.0000 | 3.5965 | | | 0.0000 | | | 0.0000 |
| Off-Road | 12.3632 | 134.4523 | 83.3595 | 0.1837 | | 5.8418 | 5.8418 | | 5.4253 | 5.4253 | | 17,747.1484 | 17,747.1484 | 5.2534 | | 17,878.4839 |
| **Total** | **12.3632** | **134.4523** | **83.3595** | **0.1837** | **8.6733** | **5.8418** | **14.5151** | **3.5965** | **5.4253** | **9.0218** | | **17,747.1484** | **17,747.1484** | **5.2534** | | **17,878.4839** |

## 3.3 Grading - 2020

### 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 | 0.0734 | 0.0495 | 0.5669 | 1.6900e-003 | 0.1643 | 1.1500e-003 | 0.1655 | 0.0436 | 1.0600e-003 | 0.0446 | | 168.5494 | 168.5494 | 5.0300e-003 | | 168.6752 |
| **Total** | **0.0734** | **0.0495** | **0.5669** | **1.6900e-003** | **0.1643** | **1.1500e-003** | **0.1655** | **0.0436** | **1.0600e-003** | **0.0446** | | **168.5494** | **168.5494** | **5.0300e-003** | | **168.6752** |

### 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 | | | | | 8.6733 | 0.0000 | 8.6733 | 3.5965 | 0.0000 | 3.5965 | | | 0.0000 | | | 0.0000 |
| Off-Road | 12.3632 | 110.3806 | 83.3595 | 0.1837 | | 5.8418 | 5.8418 | | 5.4253 | 5.4253 | 0.0000 | 17,747.1484 | 17,747.1484 | 5.2534 | | 17,878.4839 |
| **Total** | **12.3632** | **110.3806** | **83.3595** | **0.1837** | **8.6733** | **5.8418** | **14.5151** | **3.5965** | **5.4253** | **9.0218** | **0.0000** | **17,747.1484** | **17,747.1484** | **5.2534** | | **17,878.4839** |

## 3.3 Grading - 2020

**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 | 0.0734 | 0.0495 | 0.5669 | 1.6900e-003 | 0.1643 | 1.1500e-003 | 0.1655 | 0.0436 | 1.0600e-003 | 0.0446 | | 168.5494 | 168.5494 | 5.0300e-003 | | 168.6752 |
| **Total** | **0.0734** | **0.0495** | **0.5669** | **1.6900e-003** | **0.1643** | **1.1500e-003** | **0.1655** | **0.0436** | **1.0600e-003** | **0.0446** | | **168.5494** | **168.5494** | **5.0300e-003** | | **168.6752** |

## 3.4 Building Construction - 2020

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1198 | 19.1860 | 16.8485 | 0.0269 | | 1.1171 | 1.1171 | | 1.0503 | 1.0503 | | 2,553.0631 | 2,553.0631 | 0.6229 | | 2,568.6345 |
| **Total** | **2.1198** | **19.1860** | **16.8485** | **0.0269** | | **1.1171** | **1.1171** | | **1.0503** | **1.0503** | | **2,553.0631** | **2,553.0631** | **0.6229** | | **2,568.6345** |

## 3.4 Building Construction - 2020

### 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 | 0.0336 | 1.0148 | 0.2585 | 2.4600e-003 | 0.0609 | 4.9700e-003 | 0.0659 | 0.0175 | 4.7500e-003 | 0.0223 | | 264.6361 | 264.6361 | 0.0195 | | 265.1241 |
| Worker | 0.1101 | 0.0742 | 0.8504 | 2.5400e-003 | 0.2464 | 1.7300e-003 | 0.2482 | 0.0654 | 1.5900e-003 | 0.0670 | | 252.8241 | 252.8241 | 7.5500e-003 | | 253.0129 |
| **Total** | **0.1437** | **1.0890** | **1.1089** | **5.0000e-003** | **0.3074** | **6.7000e-003** | **0.3141** | **0.0829** | **6.3400e-003** | **0.0893** | | **517.4602** | **517.4602** | **0.0271** | | **518.1370** |

### 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 | 2.1198 | 19.1860 | 16.8485 | 0.0269 | | 1.1171 | 1.1171 | | 1.0503 | 1.0503 | 0.0000 | 2,553.0631 | 2,553.0631 | 0.6229 | | 2,568.6345 |
| **Total** | **2.1198** | **19.1860** | **16.8485** | **0.0269** | | **1.1171** | **1.1171** | | **1.0503** | **1.0503** | **0.0000** | **2,553.0631** | **2,553.0631** | **0.6229** | | **2,568.6345** |

## 3.4 Building Construction - 2020

**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 | 0.0336 | 1.0148 | 0.2585 | 2.4600e-003 | 0.0609 | 4.9700e-003 | 0.0659 | 0.0175 | 4.7500e-003 | 0.0223 | | 264.6361 | 264.6361 | 0.0195 | | 265.1241 |
| Worker | 0.1101 | 0.0742 | 0.8504 | 2.5400e-003 | 0.2464 | 1.7300e-003 | 0.2482 | 0.0654 | 1.5900e-003 | 0.0670 | | 252.8241 | 252.8241 | 7.5500e-003 | | 253.0129 |
| **Total** | **0.1437** | **1.0890** | **1.1089** | **5.0000e-003** | **0.3074** | **6.7000e-003** | **0.3141** | **0.0829** | **6.3400e-003** | **0.0893** | | **517.4602** | **517.4602** | **0.0271** | | **518.1370** |

## 3.4 Building Construction - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.9009 | 17.4321 | 16.5752 | 0.0269 | | 0.9586 | 0.9586 | | 0.9013 | 0.9013 | | 2,553.3639 | 2,553.3639 | 0.6160 | | 2,568.7643 |
| **Total** | **1.9009** | **17.4321** | **16.5752** | **0.0269** | | **0.9586** | **0.9586** | | **0.9013** | **0.9013** | | **2,553.3639** | **2,553.3639** | **0.6160** | | **2,568.7643** |

## 3.4 Building Construction - 2021

### 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 | 0.0272 | 0.9165 | 0.2336 | 2.4400e-003 | 0.0609 | 1.9200e-003 | 0.0629 | 0.0175 | 1.8400e-003 | 0.0194 | | 262.2168 | 262.2168 | 0.0187 | | 262.6852 |
| Worker | 0.1038 | 0.0674 | 0.7957 | 2.4500e-003 | 0.2464 | 1.7000e-003 | 0.2482 | 0.0654 | 1.5700e-003 | 0.0669 | | 244.3323 | 244.3323 | 6.9700e-003 | | 244.5066 |
| **Total** | **0.1310** | **0.9839** | **1.0293** | **4.8900e-003** | **0.3074** | **3.6200e-003** | **0.3110** | **0.0829** | **3.4100e-003** | **0.0863** | | **506.5490** | **506.5490** | **0.0257** | | **507.1918** |

### 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 | 1.9009 | 17.4321 | 16.5752 | 0.0269 | | 0.9586 | 0.9586 | | 0.9013 | 0.9013 | 0.0000 | 2,553.3639 | 2,553.3639 | 0.6160 | | 2,568.7643 |
| **Total** | **1.9009** | **17.4321** | **16.5752** | **0.0269** | | **0.9586** | **0.9586** | | **0.9013** | **0.9013** | **0.0000** | **2,553.3639** | **2,553.3639** | **0.6160** | | **2,568.7643** |

## 3.4 Building Construction - 2021

**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 | 0.0272 | 0.9165 | 0.2336 | 2.4400e-003 | 0.0609 | 1.9200e-003 | 0.0629 | 0.0175 | 1.8400e-003 | 0.0194 | | 262.2168 | 262.2168 | 0.0187 | | 262.6852 |
| Worker | 0.1038 | 0.0674 | 0.7957 | 2.4500e-003 | 0.2464 | 1.7000e-003 | 0.2482 | 0.0654 | 1.5700e-003 | 0.0669 | | 244.3323 | 244.3323 | 6.9700e-003 | | 244.5066 |
| **Total** | **0.1310** | **0.9839** | **1.0293** | **4.8900e-003** | **0.3074** | **3.6200e-003** | **0.3110** | **0.0829** | **3.4100e-003** | **0.0863** | | **506.5490** | **506.5490** | **0.0257** | | **507.1918** |

## 3.5 Paving - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.2556 | 12.9191 | 14.6532 | 0.0228 | | 0.6777 | 0.6777 | | 0.6235 | 0.6235 | | 2,207.2109 | 2,207.2109 | 0.7139 | | 2,225.0573 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.2556** | **12.9191** | **14.6532** | **0.0228** | | **0.6777** | **0.6777** | | **0.6235** | **0.6235** | | **2,207.2109** | **2,207.2109** | **0.7139** | | **2,225.0573** |

## 3.5 Paving - 2021

### 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 | 0.0519 | 0.0337 | 0.3979 | 1.2300e-003 | 0.1232 | 8.5000e-004 | 0.1241 | 0.0327 | 7.8000e-004 | 0.0335 | | 122.1661 | 122.1661 | 3.4900e-003 | | 122.2533 |
| **Total** | **0.0519** | **0.0337** | **0.3979** | **1.2300e-003** | **0.1232** | **8.5000e-004** | **0.1241** | **0.0327** | **7.8000e-004** | **0.0335** | | **122.1661** | **122.1661** | **3.4900e-003** | | **122.2533** |

### 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 | 1.2556 | 12.9191 | 14.6532 | 0.0228 | | 0.6777 | 0.6777 | | 0.6235 | 0.6235 | 0.0000 | 2,207.2109 | 2,207.2109 | 0.7139 | | 2,225.0573 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.2556** | **12.9191** | **14.6532** | **0.0228** | | **0.6777** | **0.6777** | | **0.6235** | **0.6235** | **0.0000** | **2,207.2109** | **2,207.2109** | **0.7139** | | **2,225.0573** |

## 3.5 Paving - 2021

**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 | 0.0519 | 0.0337 | 0.3979 | 1.2300e-003 | 0.1232 | 8.5000e-004 | 0.1241 | 0.0327 | 7.8000e-004 | 0.0335 | | 122.1661 | 122.1661 | 3.4900e-003 | | 122.2533 |
| **Total** | **0.0519** | **0.0337** | **0.3979** | **1.2300e-003** | **0.1232** | **8.5000e-004** | **0.1241** | **0.0327** | **7.8000e-004** | **0.0335** | | **122.1661** | **122.1661** | **3.4900e-003** | | **122.2533** |

## 3.6 Architectural Coating - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 23.6524 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2189 | 1.5268 | 1.8176 | 2.9700e-003 | | 0.0941 | 0.0941 | | 0.0941 | 0.0941 | | 281.4481 | 281.4481 | 0.0193 | | 281.9309 |
| **Total** | **23.8713** | **1.5268** | **1.8176** | **2.9700e-003** | | **0.0941** | **0.0941** | | **0.0941** | **0.0941** | | **281.4481** | **281.4481** | **0.0193** | | **281.9309** |

## 3.6 Architectural Coating - 2021

### 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 | 0.0208 | 0.0135 | 0.1591 | 4.9000e-004 | 0.0493 | 3.4000e-004 | 0.0496 | 0.0131 | 3.1000e-004 | 0.0134 | | 48.8665 | 48.8665 | 1.3900e-003 | | 48.9013 |
| **Total** | **0.0208** | **0.0135** | **0.1591** | **4.9000e-004** | **0.0493** | **3.4000e-004** | **0.0496** | **0.0131** | **3.1000e-004** | **0.0134** | | **48.8665** | **48.8665** | **1.3900e-003** | | **48.9013** |

### 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 | | | | | |
| Archit. Coating | 23.6524 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.2189 | 1.5268 | 1.8176 | 2.9700e-003 | | 0.0941 | 0.0941 | | 0.0941 | 0.0941 | 0.0000 | 281.4481 | 281.4481 | 0.0193 | | 281.9309 |
| **Total** | **23.8713** | **1.5268** | **1.8176** | **2.9700e-003** | | **0.0941** | **0.0941** | | **0.0941** | **0.0941** | **0.0000** | **281.4481** | **281.4481** | **0.0193** | | **281.9309** |

### 3.6 Architectural Coating - 2021

**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 | 0.0208 | 0.0135 | 0.1591 | 4.9000e-004 | 0.0493 | 3.4000e-004 | 0.0496 | 0.0131 | 3.1000e-004 | 0.0134 | | 48.8665 | 48.8665 | 1.3900e-003 | | 48.9013 |
| **Total** | **0.0208** | **0.0135** | **0.1591** | **4.9000e-004** | **0.0493** | **3.4000e-004** | **0.0496** | **0.0131** | **3.1000e-004** | **0.0134** | | **48.8665** | **48.8665** | **1.3900e-003** | | **48.9013** |

## 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 | 1.5896 | 6.5495 | 18.6631 | 0.0618 | 5.0403 | 0.0594 | 5.0997 | 1.3472 | 0.0557 | 1.4030 | | 6,272.1315 | 6,272.1315 | 0.3289 | | 6,280.3546 |
| Unmitigated | 1.5896 | 6.5495 | 18.6631 | 0.0618 | 5.0403 | 0.0594 | 5.0997 | 1.3472 | 0.0557 | 1.4030 | | 6,272.1315 | 6,272.1315 | 0.3289 | | 6,280.3546 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Single Family Housing | 799.68 | 832.44 | 724.08 | 2,265,855 | 2,265,855 |
| Total | 799.68 | 832.44 | 724.08 | 2,265,855 | 2,265,855 |

## 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 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 | 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 | 0.588316 | 0.042913 | 0.184449 | 0.110793 | 0.017294 | 0.005558 | 0.015534 | 0.023021 | 0.001902 | 0.002024 | 0.006181 | 0.000745 | 0.001271 |

# 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 | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |
| NaturalGas Unmitigated | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |

## 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 | | | | | |
| Single Family Housing | 6557.19 | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |
| **Total** | | **0.0707** | **0.6043** | **0.2571** | **3.8600e-003** | | **0.0489** | **0.0489** | | **0.0489** | **0.0489** | | **771.4341** | **771.4341** | **0.0148** | **0.0141** | **776.0183** |

### 5.2 Energy by Land Use - NaturalGas

**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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Single Family Housing | 6.55719 | 0.0707 | 0.6043 | 0.2571 | 3.8600e-003 | | 0.0489 | 0.0489 | | 0.0489 | 0.0489 | | 771.4341 | 771.4341 | 0.0148 | 0.0141 | 776.0183 |
| **Total** | | **0.0707** | **0.6043** | **0.2571** | **3.8600e-003** | | **0.0489** | **0.0489** | | **0.0489** | **0.0489** | | **771.4341** | **771.4341** | **0.0148** | **0.0141** | **776.0183** |

## 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 | 133.2966 | 2.5909 | 165.6381 | 0.2879 | | 22.2874 | 22.2874 | | 22.2874 | 22.2874 | 2,332.8254 | 990.8313 | 3,323.6567 | 2.1650 | 0.1835 | 3,432.4625 |
| Unmitigated | 133.2966 | 2.5909 | 165.6381 | 0.2879 | | 22.2874 | 22.2874 | | 22.2874 | 22.2874 | 2,332.8254 | 990.8313 | 3,323.6567 | 2.1650 | 0.1835 | 3,432.4625 |

## 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 | 1.2960 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 3.2357 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 128.5532 | 2.5105 | 158.6849 | 0.2875 | | 22.2491 | 22.2491 | | 22.2491 | 22.2491 | 2,332.8254 | 978.3529 | 3,311.1783 | 2.1528 | 0.1835 | 3,419.6799 |
| Landscaping | 0.2117 | 0.0804 | 6.9531 | 3.7000e-004 | | 0.0382 | 0.0382 | | 0.0382 | 0.0382 | | 12.4784 | 12.4784 | 0.0122 | | 12.7826 |
| **Total** | **133.2966** | **2.5909** | **165.6381** | **0.2879** | | **22.2874** | **22.2874** | | **22.2874** | **22.2874** | **2,332.8254** | **990.8313** | **3,323.6567** | **2.1650** | **0.1835** | **3,432.4625** |

### 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 1.2960 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 3.2357 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 128.5532 | 2.5105 | 158.6849 | 0.2875 | | 22.2491 | 22.2491 | | 22.2491 | 22.2491 | 2,332.8254 | 978.3529 | 3,311.1783 | 2.1528 | 0.1835 | 3,419.6799 |
| Landscaping | 0.2117 | 0.0804 | 6.9531 | 3.7000e-004 | | 0.0382 | 0.0382 | | 0.0382 | 0.0382 | | 12.4784 | 12.4784 | 0.0122 | | 12.7826 |
| **Total** | **133.2966** | **2.5909** | **165.6381** | **0.2879** | | **22.2874** | **22.2874** | | **22.2874** | **22.2874** | **2,332.8254** | **990.8313** | **3,323.6567** | **2.1650** | **0.1835** | **3,432.4625** |

## 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 |
|---|---|---|---|---|---|---|

## 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