

**Appendix B –  
Air Quality and Greenhouse Gas Emissions Impact Analysis  
Prepared by Giroux & Associates dated April 14, 2014**

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**AIR QUALITY and GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS**

**ESPERANZA HILLS-YORBA LINDA ESTATES**

**ORANGE COUNTY, CALIFORNIA**

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Date:

April 14, 2014

Project No.: P14-013 A

## **CLIMATE AND METEOROLOGY**

Yorba Linda's climate, as with all of Southern California, is largely dominated by the strength and position of the semi-permanent high-pressure center over the Pacific Ocean near Hawaii. It creates cool summers, mild winters, infrequent rainfall, it drives the refreshing daytime sea breeze, and it maintains comfortable humidity's and ample sunshine. Unfortunately, the same atmospheric processes that create the desirable living climate combine to severely restrict the ability of the atmosphere to disperse the air pollution generated mainly by the large population attracted by the climate. Portions of the Los Angeles Basin, including northern Orange County, therefore, experience some of the worst air quality in the nation for certain pollution species.

Regional air quality is controlled by the location and strength of pollutant sources and by the winds and inversions that control the horizontal and vertical regional dispersion patterns. Winds near the project site, as monitored at the nearest South Coast Air Quality Management District (SCAQMD) measurement station in Anaheim, display several characteristic regimes. During the day, especially in summer, winds are from the west and southwest at 7-9 miles per hour. At night, especially in winter, the land becomes cooler than the ocean and an offshore wind of 3-5 miles per hour develops. One other important wind regime occurs when a high-pressure center forms over the western United States and creates strong offshore winds. These winds are warmed and dried by air compression as they descend from the upper desert regions into the basin. These winds are accelerated through local canyons and create hot, dry, gusty Santa Ana's from the east and northeast across northern Orange and southern Los Angeles Counties.

The low frequency of calms and adequate daytime ventilation speed typically do not allow for any daytime stagnation of air pollutants in the Yorba Linda area. The moderate onshore breeze carries any locally generated emissions eastward toward the Chino Hills or across northern Orange County and then up Santa Ana or Carbon Canyons toward receptors in western San Bernardino and Riverside Counties. Any daytime air quality problems occur mainly when winds shift more into the northwest and the daytime clean sea breeze is replaced by airflow across substantial pollution generation areas of southwestern Los Angeles County. These winds bring occasional unhealthful smog levels across the project site during the summer and early fall. Wind at night drifting seaward across the air basin and off the nearby hills is much slower and does allow for localized stagnation of pollution, but the density of vehicular sources in the upwind area is generally low enough to minimize any major air pollution problems. Any air pollution episodes, if they occur, are, therefore, due mainly to pollutants transported into the area rather than any locally generated emissions.

In addition to winds that govern the horizontal rate and trajectory of any air pollutants, Southern California experiences several characteristic temperature inversions that control the vertical depth through which pollutants can be mixed. The daytime onshore flow of marine air is capped by a massive dome of warm air that acts like a giant lid over the basin. As the clean ocean air moves inland, pollutants are continually added from below without any dilution from above. As this layer slows down in inland valleys of the basin and undergoes photochemical transformations under abundant sunlight, it creates very unhealthful levels of smog (mainly ozone).

A second inversion forms at night as cool air pools in low elevations while the air aloft remains warm. Shallow radiation inversions are formed (especially in winter) that trap pollutants near intensive traffic sources such as freeways, shopping centers, etc., and form localized violations of clean air standards called "hot spots." If any noticeable, direct air pollution effects were to occur from changes in the vehicular distribution around the proposed roadway improvement project area, it would be from automotive exhaust trapped by these nocturnal radiation inversions.

## AIR QUALITY SETTING

### AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the proposed Esperanza Hills project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule, which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to "non-attainment" for the 8-hour ozone standard.

**Table 1**

| Ambient Air Quality Standards                           |                         |                                    |  |   |                                   |   |  |  |  |
|---|-------------------------|------------------------------------|--|---|-----------------------------------|---|--|--|--|
| Pollutant   | Averaging Time          | California Standards <sup>1</sup>  |  | National Standards <sup>2</sup>                         |                                   |   |  |  |  |
|   |                         | Concentration <sup>3</sup>         | Method <sup>4</sup>                                    | Primary <sup>3,5</sup>                                  | Secondary <sup>3,6</sup>          | Method <sup>7</sup>   |  |  |  |
| <b>Ozone (O<sub>3</sub>)</b>                            | 1 Hour                  | 0.09 ppm (180 µg/m <sup>3</sup> )  | Ultraviolet Photometry                                 | —   | Same as Primary Standard          | Ultraviolet Photometry  |  |  |  |
|   | 8 Hour                  | 0.070 ppm (137 µg/m <sup>3</sup> ) |  | 0.075 ppm (147 µg/m <sup>3</sup> )                      |                                   |   |  |  |  |
| <b>Respirable Particulate Matter (PM10)<sup>8</sup></b> | 24 Hour                 | 50 µg/m <sup>3</sup>               | Gravimetric or Beta Attenuation                        | 150 µg/m <sup>3</sup>                                   | Same as Primary Standard          | Inertial Separation and Gravimetric Analysis                        |  |  |  |
|   | Annual Arithmetic Mean  | 20 µg/m <sup>3</sup>               |  | —   |                                   |   |  |  |  |
| <b>Fine Particulate Matter (PM2.5)<sup>8</sup></b>      | 24 Hour                 | —                                  | Gravimetric or Beta Attenuation                        | 35 µg/m <sup>3</sup>                                    | Same as Primary Standard          | Inertial Separation and Gravimetric Analysis                        |  |  |  |
|   | Annual Arithmetic Mean  | 12 µg/m <sup>3</sup>               |  | 12.0 µg/m <sup>3</sup>                                  | 15 µg/m <sup>3</sup>              |   |  |  |  |
| <b>Carbon Monoxide (CO)</b>                             | 1 Hour                  | 20 ppm (23 mg/m <sup>3</sup> )     | Non-Dispersive Infrared Photometry (NDIR)              | 35 ppm (40 mg/m <sup>3</sup> )                          | —                                 | Non-Dispersive Infrared Photometry (NDIR)                           |  |  |  |
|   | 8 Hour                  | 9.0 ppm (10 mg/m <sup>3</sup> )    |  | 9 ppm (10 mg/m <sup>3</sup> )                           | —                                 |   |  |  |  |
|   | 8 Hour (Lake Tahoe)     | 6 ppm (7 mg/m <sup>3</sup> )       |  | —   | —                                 |   |  |  |  |
| <b>Nitrogen Dioxide (NO<sub>2</sub>)<sup>9</sup></b>    | 1 Hour                  | 0.18 ppm (339 µg/m <sup>3</sup> )  | Gas Phase Chemiluminescence                            | 100 ppb (188 µg/m <sup>3</sup> )                        | —                                 | Gas Phase Chemiluminescence   |  |  |  |
|   | Annual Arithmetic Mean  | 0.030 ppm (57 µg/m <sup>3</sup> )  |  | 0.053 ppm (100 µg/m <sup>3</sup> )                      | Same as Primary Standard          |   |  |  |  |
| <b>Sulfur Dioxide (SO<sub>2</sub>)<sup>10</sup></b>     | 1 Hour                  | 0.25 ppm (655 µg/m <sup>3</sup> )  | Ultraviolet Fluorescence                               | 75 ppb (196 µg/m <sup>3</sup> )                         | —                                 | Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method) |  |  |  |
|   | 3 Hour                  | —                                  |  | —   | 0.5 ppm (1300 µg/m <sup>3</sup> ) |   |  |  |  |
|   | 24 Hour                 | 0.04 ppm (105 µg/m <sup>3</sup> )  |  | 0.14 ppm (for certain areas) <sup>10</sup>              | —                                 |   |  |  |  |
|   | Annual Arithmetic Mean  | —                                  |  | 0.030 ppm (for certain areas) <sup>10</sup>             | —                                 |   |  |  |  |
| <b>Lead<sup>11,12</sup></b>                             | 30 Day Average          | 1.5 µg/m <sup>3</sup>              | Atomic Absorption                                      | —   | —                                 | High Volume Sampler and Atomic Absorption                           |  |  |  |
|   | Calendar Quarter        | —                                  |  | 1.5 µg/m <sup>3</sup> (for certain areas) <sup>12</sup> | Same as Primary Standard          |   |  |  |  |
|   | Rolling 3-Month Average | —                                  |  | 0.15 µg/m <sup>3</sup>                                  |                                   |   |  |  |  |
| <b>Visibility Reducing Particles<sup>13</sup></b>       | 8 Hour                  | See footnote 13                    | Beta Attenuation and Transmittance through Filter Tape | <b>No National Standards</b>                            |                                   |   |  |  |  |
| <b>Sulfates</b>   | 24 Hour                 | 25 µg/m <sup>3</sup>               | Ion Chromatography                                     |   |                                   |   |  |  |  |
| <b>Hydrogen Sulfide</b>                                 | 1 Hour                  | 0.03 ppm (42 µg/m <sup>3</sup> )   | Ultraviolet Fluorescence                               |   |                                   |   |  |  |  |
| <b>Vinyl Chloride<sup>11</sup></b>                      | 24 Hour                 | 0.01 ppm (26 µg/m <sup>3</sup> )   | Gas Chromatography                                     |   |                                   |   |  |  |  |

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (6/4/13)

## Table 1 (continued)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, 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 PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above  $150 \mu\text{g}/\text{m}^3$  is equal to or less than one. For PM2.5, 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  $25^\circ\text{C}$  and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of  $25^\circ\text{C}$  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 ARB 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 December 14, 2012, the national annual PM2.5 primary standard was lowered from  $15 \mu\text{g}/\text{m}^3$  to  $12.0 \mu\text{g}/\text{m}^3$ . The existing national 24-hour PM2.5 standards (primary and secondary) were retained at  $35 \mu\text{g}/\text{m}^3$ , as was the annual secondary standard of  $15 \mu\text{g}/\text{m}^3$ . The existing 24-hour PM10 standards (primary and secondary) of  $150 \mu\text{g}/\text{m}^3$  also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
9. 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 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard 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.
10. On June 2, 2010, a new 1-hour SO<sub>2</sub> 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 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO<sub>2</sub> 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.
11. 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.
12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard ( $1.5 \mu\text{g}/\text{m}^3$  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.
13. 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.

**Table 2**  
**Health Effects of Major Criteria Pollutants**

| Pollutants                          | Sources  | Primary Effects   |
|-------------------------------------|--|---|
| Carbon Monoxide (CO)                | <ul style="list-style-type: none"> <li>Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust.</li> <li>Natural events, such as decomposition of organic matter.</li> </ul>  | <ul style="list-style-type: none"> <li>Reduced tolerance for exercise.</li> <li>Impairment of mental function.</li> <li>Impairment of fetal development.</li> <li>Death at high levels of exposure.</li> <li>Aggravation of some heart diseases (angina).</li> </ul>                                      |
| Nitrogen Dioxide (NO <sub>2</sub> ) | <ul style="list-style-type: none"> <li>Motor vehicle exhaust.</li> <li>High temperature stationary combustion.</li> <li>Atmospheric reactions.</li> </ul>  | <ul style="list-style-type: none"> <li>Aggravation of respiratory illness.</li> <li>Reduced visibility.</li> <li>Reduced plant growth.</li> <li>Formation of acid rain.</li> </ul>  |
| Ozone (O <sub>3</sub> )             | <ul style="list-style-type: none"> <li>Atmospheric reaction of organic gases with nitrogen oxides in sunlight.</li> </ul>  | <ul style="list-style-type: none"> <li>Aggravation of respiratory and cardiovascular diseases.</li> <li>Irritation of eyes.</li> <li>Impairment of cardiopulmonary function.</li> <li>Plant leaf injury.</li> </ul>   |
| Lead (Pb)                           | <ul style="list-style-type: none"> <li>Contaminated soil.</li> </ul>   | <ul style="list-style-type: none"> <li>Impairment of blood function and nerve construction.</li> <li>Behavioral and hearing problems in children.</li> </ul>  |
| Fine Particulate Matter (PM-10)     | <ul style="list-style-type: none"> <li>Stationary combustion of solid fuels.</li> <li>Construction activities.</li> <li>Industrial processes.</li> <li>Atmospheric chemical reactions.</li> </ul>  | <ul style="list-style-type: none"> <li>Reduced lung function.</li> <li>Aggravation of the effects of gaseous pollutants.</li> <li>Aggravation of respiratory and cardio respiratory diseases.</li> <li>Increased cough and chest discomfort.</li> <li>Soiling.</li> <li>Reduced visibility.</li> </ul>    |
| Fine Particulate Matter (PM-2.5)    | <ul style="list-style-type: none"> <li>Fuel combustion in motor vehicles, equipment, and industrial sources.</li> <li>Residential and agricultural burning.</li> <li>Industrial processes.</li> <li>Also, formed from photochemical reactions of other pollutants, including NO<sub>x</sub>, sulfur oxides, and organics.</li> </ul> | <ul style="list-style-type: none"> <li>Increases respiratory disease.</li> <li>Lung damage.</li> <li>Cancer and premature death.</li> <li>Reduces visibility and results in surface soiling.</li> </ul>   |
| Sulfur Dioxide (SO <sub>2</sub> )   | <ul style="list-style-type: none"> <li>Combustion of sulfur-containing fossil fuels.</li> <li>Smelting of sulfur-bearing metal ores.</li> <li>Industrial processes.</li> </ul>   | <ul style="list-style-type: none"> <li>Aggravation of respiratory diseases (asthma, emphysema).</li> <li>Reduced lung function.</li> <li>Irritation of eyes.</li> <li>Reduced visibility.</li> <li>Plant injury.</li> <li>Deterioration of metals, textiles, leather, finishes, coatings, etc.</li> </ul> |

Source: California Air Resources Board, 2002.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted in 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the exposure period for the federal 8-hour standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide ( $\text{NO}_2$ ) that is more stringent than the corresponding federal standard, and strengthened the state one-hour  $\text{NO}_2$  standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted. In December, 2012, the federal annual standard for PM-2.5 was reduced from  $15 \mu\text{g}/\text{m}^3$  to  $12 \mu\text{g}/\text{m}^3$  which matches the California AAQS. The severity of the basin's non-attainment status for PM-2.5 may be increased by this action and thus require accelerated planning for future PM-2.5 attainment.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthy, EPA had proposed a further strengthening of the 8-hour standard. Draft standards were published. The anticipated future 8-hour standard was 0.065 ppm. Environmental organizations generally praised this proposal. Most manufacturing, transportation or power generation groups opposed the new standard as economically unwise in an uncertain fiscal climate. In recognition of the fact that a stronger ozone standard could adversely impact employment, that proposal has been placed on indefinite hold.

A new federal one-hour standard for nitrogen dioxide ( $\text{NO}_2$ ) has also recently been adopted. This standard is more stringent than the existing state standard. Based upon air quality monitoring data in the South Coast Air Basin, the California Air Resources Board has requested the EPA to designate the basin as being in attainment for this standard. The federal standard for sulfur dioxide ( $\text{SO}_2$ ) was also recently revised. However, with minimal combustion of coal and mandatory use of low sulfur fuels in California,  $\text{SO}_2$  is typically not a problem pollutant.

## **BASELINE AIR QUALITY**

Existing and probable future levels of air quality around the project area can best be inferred from ambient air quality measurements conducted by the SCAQMD at the Anaheim monitoring station. This station measures both regional pollution levels such as smog, as well as primary vehicular pollution levels near busy roadways such as carbon monoxide and nitrogen oxides. Pollutants such as particulates (PM-10 and PM-2.5) are also monitored at Anaheim. Table 3 is a 6-year summary of monitoring data for the major air pollutants compiled from this air monitoring station. From these data the following conclusions regarding air quality trends can be drawn:

- a. Photochemical smog (ozone) levels occasionally exceed standards. The 1-hour state standard and the 8-hour state and federal ozone standard have been exceeded an average of 1 percent of all days in the past six years. Years 2010, 2011 and 2012 demonstrate progressively improved ozone levels in the area. While ozone levels are still high, they are much lower than 10 to 20 years ago.
- b. Respirable dust (PM-10) levels occasionally exceed the state standard on approximately three percent of measured days. As with ozone, the frequency of violations has noticeably decreased in recent years. The less stringent federal PM-10 standard was violated once in 2007 during a wildfire event.
- c. The federal ultra-fine particulate (PM-2.5) standard of  $35 \mu\text{g}/\text{m}^3$  has been exceeded less than two percent of measurement days in the last six years. Year 2010 has been the “cleanest” year on records.
- d. More localized pollutants such as carbon monoxide, nitrogen oxides, etc. are very low near the project site. There is substantial excess dispersive capacity to accommodate localized vehicular air pollutants such as NOx or CO without any threat of violating applicable AAQS.

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

**Table 3**

**Air Quality Monitoring Summary (2007-2012)**  
**(Number of Days Standards Were Exceeded, and**  
**Maximum Levels During Such Violations)**

**(Entries shown as ratios = samples exceeding standard/samples taken)**

| Pollutant/Standard                      | 2007   | 2008  | 2009  | 2010  | 2011  | 2012  |
|---|--------|-------|-------|-------|-------|-------|
| <b>Ozone</b>                            |        |       |       |       |       |       |
| 1-Hour > 0.09 ppm (S)                   | 2      | 2     | 0     | 1     | 0     | 0     |
| 8-Hour > 0.07 ppm (S)                   | 7      | 10    | 2     | 1     | 1     | 0     |
| 8-Hour > 0.075 ppm (F)                  | 1      | 5     | 1     | 1     | 0     | 0     |
| Max. 1-Hour Conc. (ppm)                 | 0.127  | 0.105 | 0.093 | 0.104 | 0.088 | 0.079 |
| Max. 8-Hour Conc. (ppm)                 | 0.100  | 0.086 | 0.077 | 0.088 | 0.072 | 0.067 |
| <b>Carbon Monoxide</b>                  |        |       |       |       |       |       |
| 1-hour > 20. ppm (S)                    | 0      | 0     | 0     | 0     | 0     | 0     |
| 8-Hour > 9. ppm (S,F)                   | 0      | 0     | 0     | 0     | 0     | 0     |
| Max 1-hour Conc. (ppm)                  | 3.6    | 4.1   | 3.2   | 2.7   | 2.7   | -     |
| Max 8-hour Conc. (ppm)                  | 2.9    | 3.4   | 2.7   | 2.0   | 2.1   | 2.3   |
| <b>Nitrogen Dioxide</b>                 |        |       |       |       |       |       |
| 1-Hour > 0.18 ppm (S)                   | 0      | 0     | 0     | 0     | 0     | 0     |
| Max. 1-Hour Conc. (ppm)                 | 0.086  | 0.093 | 0.068 | 0.073 | 0.074 | 0.067 |
| <b>Inhalable Particulates (PM-10)</b>   |        |       |       |       |       |       |
| 24-hour > 50 µg/m³ (S)                  | 6/59   | 3/58  | 1/56  | 0/57  | 2/60  | 0/61  |
| 24-hour > 150 µg/m³ (F)                 | 1/59   | 0/58  | 0/56  | 0/57  | 0/60  | 0/61  |
| Max. 24-Hr. Conc. (µg/m³)               | 488.*  | 61.   | 62.   | 43.   | 53.   | 48.   |
| <b>Ultra-Fine Particulates (PM-2.5)</b> |        |       |       |       |       |       |
| 24-Hour > 35 µg/m³ (F)                  | 14/336 | 5/304 | 5/362 | 0/363 | 2/365 | 4/347 |
| Max. 24-Hr. Conc. (µg/m³)               | 79.4   | 67.8  | 64.5  | 31.7  | 39.2  | 50.1  |

\*wild fire event

Source: South Coast AQMD Air Monitoring Station Data Summary, Anaheim Station (3176)

## AIR QUALITY PLANNING

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAA) required that all states with air-sheds with “serious” or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NOx) and for carbon monoxide (CO) and for particulate matter are shown in Table 4. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air “blueprint” in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date was to “slip” from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 requires control technologies that do not exist yet, the SCAQMD requested a voluntary “bump-up” from a “severe non-attainment” area to an “extreme non-attainment” designation for ozone. The extreme designation will allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on “black-box” measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from “severe-17” to “extreme.” This reclassification sets a later attainment deadline (2024), but also requires the air basin to adopt even more stringent emissions controls.

**Table 4**  
**South Coast Air Basin Emissions Forecasts (Emissions in tons/day)**

| Pollutant     | 2008 <sup>a</sup> | 2010 <sup>b</sup> | 2015 <sup>b</sup> | 2020 <sup>b</sup> |
|---------------|-------------------|-------------------|-------------------|-------------------|
| <b>NOx</b>    | 917               | 836               | 667               | 561               |
| <b>ROG</b>    | 632               | 596               | 545               | 525               |
| <b>CO</b>     | 3,344             | 3,039             | 2,556             | 2,281             |
| <b>PM-10</b>  | 308               | 314               | 328               | 340               |
| <b>PM-2.5</b> | 110               | 110               | 111               | 113               |

<sup>a</sup>2008 Base Year.

<sup>b</sup>With current emissions reduction programs and adopted growth forecasts.

Source: California Air Resources Board, California Emissions Projection Analysis Model, 2009

In previous attainment plan reviews, EPA disapproved part of the SCAB PM-2.5 attainment plan included in the AQMP. EPA stated that the current attainment plan relies on PM-2.5 control regulations that have not yet been approved or implemented. It is expected that a number of rules that are pending approval will remove the identified issues. The recently adopted 2012 AQMP being readied for ARB submittal to EPA as part of the California State Implementation Plan (SIP) is expected to remedy these deficiencies.

The federal Clean Air Act requires that non-attainment air basins have EPA approved attainment plans in place. This requirement includes the federal one-hour ozone standard even though that standard was revoked around eight years ago. There was no approved attainment plan for the one-hour federal standard at the time of revocation. Through a legal quirk, the SCAQMD is now forced to develop an AQMP for the long since revoked one-hour federal ozone standard. However, because attainment strategies for the federal one-and eight-hour ozone standards are essentially identical, the 2012 AQMP for ozone is anticipated to be an appropriate plan for both standards.

Projects such as the proposed Esperanza Hills project do not directly relate to the AQMP in that there are no specific air quality programs or regulations governing general development. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined.

The 2012 AQMP has assumed that development associated with general plans, specific plans, residential projects, and wastewater facilities will be constructed in accordance with population growth projections identified by SCAG in its 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The 2012 AQMP has assumed that such development projects will implement strategies to reduce emissions generated during the construction and operational phases of development.

Criteria for determining consistency with the AQMP are defined in the SCAQMD CEQA Air Quality Handbook (1993) as follows:

Consistency Criterion No 1: The proposed Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

The project would be consistent with the AQMP if it would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards.

As shown later in this report, the proposed project could potentially violate an air quality standard or contribute to an air quality violation during Phase I grading. However, implementation of the mitigation measures would reduce associated impacts to less-than-significant

Consistency Criterion No 2: The proposed project will not exceed the assumptions in the AQMP or increments based on the years of project build-out phase.

A project would conflict with the AQMP if it will exceed the assumptions in the AQMP or increments based on the year of project build-out. The Handbook indicates that key assumptions to use in this analysis are population and housing growth projections used in the Regional Transportation Model run by the Southern California Association of Governments. For unincorporated Orange County the model predicts that between years 2008 and 2020 the number of households will increase from 38,500 to 44,000. This project adds 378 housing units, which account for less than 7% of the total projected growth. The proposed development is consistent with regional growth projections.

Therefore, the proposed project would not conflict with or obstruct implementation of the air quality plan established for the region such that impacts would be less-than-significant.

## AIR QUALITY IMPACT

### STANDARDS OF SIGNIFICANCE

Air quality impacts are considered “significant” if they cause clean air standards to be violated where they are currently met, or if they “substantially” contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

- a. Conflicts with or obstructs implementation of the applicable air quality plan.
- b. Violates any air quality standard or contributes substantially to an existing or projected air quality violation.
- c. Results in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- d. Exposes sensitive receptors to substantial pollutant concentrations.
- e. Creates objectionable odors affecting a substantial number of people.

### Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

### Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based

upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines.

### **Daily Emissions Thresholds**

| <b>Pollutant</b> | <b>Construction</b> | <b>Operations</b> |
|------------------|---------------------|-------------------|
| ROG              | 75                  | 55                |
| NOx              | 100                 | 55                |
| CO               | 550                 | 550               |
| PM-10            | 150                 | 150               |
| PM-2.5           | 55                  | 55                |
| SOx              | 150                 | 150               |
| Lead             | 3                   | 3                 |

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

### **Additional Indicators**

In its CEQA Handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation
- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.
- Project could generate vehicle trips that cause a CO hot spot.

The SCAQMD CEQA Handbook also identifies various secondary significance criteria related to toxic, hazardous or odorous air contaminants. Except for the small diameter particulate matter ("PM-2.5") fraction of diesel exhaust generated by heavy construction equipment, there are no secondary impact indicators associated with project construction and subsequent occupancy. For PM-2.5 exhaust emissions, recently adopted policies require the gradual conversion of on-road delivery fleets and off-road heavy equipment to low NOx and low PM-2.5 emissions or the use

of “clean” diesel if their emissions are demonstrated to be as low as those required by “Tier 4” standards. Because health risks from toxic air contaminants (TAC’s) are cumulative over an assumed 70-year lifespan, measurable off-site public health risk from diesel TAC exposure would occur for only a brief construction portion of a project lifetime, and only in dilute quantity.

## **SENSITIVE RECEPTORS**

Air quality impacts are analyzed relative to those persons with the greatest sensitivity to air pollution exposure. Such persons are called “sensitive receptors.” Sensitive population groups include young children, the elderly and the acutely and chronically ill (especially those with cardio-respiratory disease).

Residential areas are considered to be sensitive to air pollution exposure because they may be occupied for extended periods, and residents may be outdoors when exposure is highest. Schools are similarly considered to be sensitive receptors.

Several development options are being considered for this project, each with a different primary main access roadway. Proximity to access/egress roadways for each project option is shown below:

| <b>Option</b> | <b>Access Roadway</b>               | <b>Distance to Closest Home</b> |
|---------------|-------------------------------------|---------------------------------|
| Option 1      | Stonehaven Way                      | 50 feet to receiver             |
| Option 2      | Aspen Way @ San Antonio             | 50 feet to receiver             |
| Option 2A     | San Antonio (1,850 feet S of Aspen) | 250 feet to receiver            |

## **CONSTRUCTION ACTIVITY IMPACTS**

Dust is typically the primary concern during construction of new homes and infrastructure. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions." Emission rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). These parameters are not known with any reasonable certainty prior to project development and may change from day to day. Any assignment of specific parameters to an unknown future date is speculative and conjectural.

Because of the inherent uncertainty in the predictive factors for estimating fugitive dust generation, regulatory agencies typically use one universal "default" factor based on the area disturbed assuming that all other input parameters into emission rate prediction fall into midrange average values. This assumption may or may not be totally applicable to site-specific conditions on the proposed project site. As noted previously, emissions estimation for project-specific fugitive dust sources is therefore characterized by a considerable degree of imprecision.

Average daily PM-10 emissions during site grading and other disturbance average about 10 pounds per acre. This estimate presumes the use of reasonably available control measures (RACMs). The SCAQMD requires the use of best available control measures (BACMs) for fugitive dust from construction activities. With the use of BACMs, fugitive dust emissions can be reduced to 1-2 pounds per day per acre disturbed.

Current research in particulate-exposure health suggests that the most adverse effects derive from ultra-small diameter particulate matter comprised of chemically reactive pollutants such as sulfates, nitrates or organic material. A national clean air standard for particulate matter of 2.5 microns or smaller in diameter (called "PM-2.5") was adopted in 1997. A limited amount of construction activity particulate matter is in the PM-2.5 range. PM-2.5 emissions are estimated to comprise 10-20 percent of PM-10.

In addition to fine particles that remain suspended in the atmosphere semi-indefinitely, construction activities generate many larger particles with shorter atmospheric residence times. This dust is comprised mainly of large diameter inert silicates that are chemically non-reactive and are further readily filtered out by human breathing passages. These fugitive dust particles are therefore more of a potential soiling nuisance as they settle out on parked cars, outdoor furniture or landscape foliage rather than any adverse health hazard. The deposition distance of most soiling nuisance particulates is less than 100 feet from the source (EPA, 1995) under normal wind conditions. Most adjacent sensitive receptors are further than 100 feet from the Esperanza Hills project construction site perimeter. Existing uses closer than 100 feet will only have construction activities in close proximity for a short period of time.

Exhaust emissions will result from on and off-site heavy equipment. The types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. Initial clearing and grading activities will shift towards construction and paving, etc. Each of the three development option requires a varying amount of grading. No earthworks are anticipated to require on-road haul, rather transported or borrowed from an adjacent undeveloped

sites. The volume of earthworks anticipated by each option is shown below. The center of each borrow site in relationship to the center of the proposed project development is also indicated below. The grading quantities and haul distance indicated below were modeled to determine all construction emissions associated with project grading.

| Option | Borrow     | Distance to Borrow Site |
|--------|------------|-------------------------|
| 1      | 286,700 CY | 1,000 feet              |
| 2      | 730 CY     | 1,700 feet              |
| 2A     | 57,000 CY  | 2,400 feet              |

The project build-out schedule could depend on market demand; however, for this analysis it was assumed that the project would be developed at one time and in two phases. Phase 1 would grade the entire site and construct 218 homes along the bottom portion of the ridge. Phase 2 would construct 160 homes along the upper ridge. At a build rate of 80 homes per year, the duration of Phase 1 would be 2.7 years and approximately 2 years for Phase 2. The assumed total period of off-site disturbance was six years from early 2015 to late 2020. Durations for project construction activities were obtained from the construction manager.

Other than grading quantities, the three phases are identical in terms of construction emissions. However, because grading quantities in Option 1 are the largest, and therefore represent the worst case scenario, only Option 1 was analyzed for this study. If the emissions from Option 1 do not exceed SCAQMD construction emissions thresholds then the other development options would also meet thresholds.

The CalEEMod computer model was developed by the SCAQMD and provides a mechanism to calculate both construction emissions and operational emissions from a residential land use project. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions. The CalEEMod 2013.2.2 computer model was used to calculate emissions from the prototype construction equipment fleet and schedule as shown in Table 5. The equipment fleet shown is primarily CalEEMod's default fleet for a residential-use project of the indicated size, with the addition of three scrapers and a grader during grading to ensure an accurate and conservative analysis. CalEEMod defaults and modeled data details are found in the appendix of this report.

**Table 5**  
**CalEEMod Equipment Fleet Phase 1**  
**2015-2018**

|                                |                           |
|--------------------------------|---------------------------|
| <b>Clearing/Prep (30 Days)</b> | 4 Tractor/Loader/Backhoes |
|                                | 3 Dozers                  |
| <b>Grading (175 days)</b>      | 2 Excavators              |
|                                | 1 Dozer                   |
|                                | 2 Graders                 |
|                                | 5 Scrapers                |
|                                | 2 Tractor/Loader/Backhoes |
|                                |                           |
| <b>Construction (700 days)</b> | 1 Crane                   |
|                                | 3 Forklifts               |
|                                | 1 Generator Set           |
|                                | 3 Tractor/Loader/Backhoes |
|                                | 1 Welder                  |
| <b>Paving (15 days)</b>        | 2 Pavers                  |
|                                | 2 Paving equipment        |
|                                | 2 Rollers                 |

**CalEEMod Equipment Fleet Phase 2**  
**2018-2020**

|                                |                           |
|--------------------------------|---------------------------|
| <b>Construction (500 days)</b> | 1 Crane                   |
|                                | 3 Forklifts               |
|                                | 1 Generator Set           |
|                                | 3 Tractor/Loader/Backhoes |
|                                | 1 Welder                  |
| <b>Paving (15 days)</b>        | 2 Pavers                  |
|                                | 2 Paving equipment        |
|                                | 2 Rollers                 |

Utilizing this indicated equipment fleet the following worst case daily emissions were calculated by CalEEMod. Required dust mitigation measures are provided in the mitigation section of this report. The mitigation measures applied to construction equipment for the “with mitigation” scenario include the best available construction management practices as well as the following additional measures:

- ❖ All project Excavators, Dozers, Graders, and Scrapers utilized for grading activities shall be equipped with:
  - Tier 3 Rated Engines (or better)

CalEEMod construction demonstrating the unmitigated and mitigated emissions are shown in Tables 6 and 7 for the assumed six year construction scenario. Phase 2 is assumed to commence immediately after the finish of Phase 1.

Without the use of mitigation, equipment emissions could exceed their SCAQMD thresholds for NOx during project grading. However, the use of new or recently retrofitted Tier 3 diesel

equipment could reduce daily NOx emissions to less than significant levels. Therefore, either an extended build-out schedule or aggressive equipment NOx control would reduce daily NOx impacts to less-than-significant levels.

**Table 6**  
**Option 1 Phase 1**  
**Construction Activity Emissions**  
**Maximum Daily Emissions (pounds/day)**

| <b>Maximal Construction Emissions</b> | <b>ROG</b> | <b>NOx</b> | <b>CO</b> | <b>SO<sub>2</sub></b> | <b>PM-10</b> | <b>PM-2.5</b> |
|---------------------------------------|------------|------------|-----------|-----------------------|--------------|---------------|
| <b>2015</b>                           |            |            |           |                       |              |               |
| Unmitigated                           | 13.8       | 150.9      | 118.2     | 0.1                   | 21.4         | 12.8          |
| Mitigated                             | 9.1        | 62.6       | 94.3      | 0.1                   | 8.8          | 5.4           |
| <b>2016</b>                           |            |            |           |                       |              |               |
| Unmitigated                           | 9.7        | 33.4       | 28.8      | 0.0                   | 3.4          | 2.4           |
| Mitigated                             | 8.7        | 33.4       | 28.8      | 0.0                   | 3.4          | 2.4           |
| <b>2017</b>                           |            |            |           |                       |              |               |
| Unmitigated                           | 8.4        | 30.8       | 27.7      | 0.0                   | 3.2          | 2.2           |
| Mitigated                             | 8.3        | 30.8       | 27.7      | 0.0                   | 3.2          | 2.2           |
| <b>2018</b>                           |            |            |           |                       |              |               |
| Unmitigated                           | 7.8        | 27.3       | 26.5      | 0.0                   | 2.9          | 1.9           |
| Mitigated                             | 7.8        | 27.3       | 26.5      | 0.0                   | 2.9          | 1.9           |
| SCAQMD Thresholds                     | 75         | 100        | 550       | 150                   | 150          | 55            |

Source: CalEEMod.2013.2.2 output in appendix, includes on-road materials delivery as well as construction crew commuting

**Table 7**  
**Option 1 Phase 2**  
**Construction Activity Emissions**  
**Maximum Daily Emissions (pounds/day)**

| <b>Maximal Construction Emissions</b> | <b>ROG</b> | <b>NOx</b> | <b>CO</b> | <b>SO<sub>2</sub></b> | <b>PM-10</b> | <b>PM-2.5</b> |
|---------------------------------------|------------|------------|-----------|-----------------------|--------------|---------------|
| <b>2018</b>                           |            |            |           |                       |              |               |
| Unmitigated                           | 7.8        | 26.7       | 24.1      | 0.0                   | 2.6          | 1.8           |
| Mitigated                             | 7.8        | 26.7       | 24.1      | 0.0                   | 2.6          | 1.8           |
| <b>2019</b>                           |            |            |           |                       |              |               |
| Unmitigated                           | 7.4        | 24.2       | 23.4      | 0.0                   | 2.3          | 1.6           |
| Mitigated                             | 7.4        | 24.2       | 23.4      | 0.0                   | 2.3          | 1.6           |
| <b>2020</b>                           |            |            |           |                       |              |               |
| Unmitigated                           | 1.4        | 13.8       | 14.9      | 0.0                   | 1.0          | 0.7           |
| Mitigated                             | 1.4        | 13.8       | 14.9      | 0.0                   | 1.0          | 0.7           |
| SCAQMD Thresholds                     | 75         | 100        | 550       | 150                   | 150          | 55            |

## LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant concentration data is currently published for 1, 2 and 5 acre sites for varying distances. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, the following tables should be used to determine the maximum daily disturbed-acreage for comparison to LSTs.

### Maximum Daily Disturbed Acreage

| <b>Equipment Type</b> | <b>Acres/8-hr-day</b> |
|-----------------------|-----------------------|
| Tractor               | 0.5                   |
| Graders               | 0.5                   |
| Rubber Tired Dozers   | 0.5                   |
| Scrapers              | 1                     |

Based on this table, the proposed will result in a maximum of 6.5 acres disturbed during peak construction grading activity ( $1 \text{ dozer} \times 0.5 + 2 \text{ graders} \times 0.5 + 5 \text{ Scrapers} \times 1 = 6.5 \text{ acres disturbed}$ ).

The SCAQMD has developed LST screening tables for construction disturbance of five acres and less. However, these tables can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required. If emissions exceed the LST screening value for a five-acre site, then dispersion modeling needs to be conducted. Use of a five-acre site model for the project site for construction activities would result in more stringent LSTs because emissions would occur in a more concentrated area and closer to the nearest sensitive receptors than in reality.

LST screening tables are available for 25, 50, 100, 200 and 500 meter source-receptor distances. The nearest residential use is approximately 600 feet (200 meters) from the closest Esperanza Hills lot. Per LST guidance, only on-site construction activity is considered in the LST analysis. On-site construction emissions are provided in the CalEEMod output files and do not include sources such as on-road haul, worker commuting or vendor delivery emissions. Therefore, the following thresholds and emissions in Table 8 are determined (pounds per day).

**Table 8**  
**LST and Project Emissions**

|                              | <b>CO</b> | <b>NOx</b> | <b>PM-10</b> | <b>PM-2.5</b> |
|------------------------------|-----------|------------|--------------|---------------|
| <b>LST Thresholds</b>        |           |            |              |               |
| <b>North Orange County*</b>  |           |            |              |               |
| <b>5 acres, 200 meters</b>   | 3,605     | 249        | 78           | 34            |
| <b>Max On-Site Emissions</b> |           |            |              |               |
| <b>Option 1 Phase 1</b>      |           |            |              |               |
| Unmitigated                  | 118       | 151        | 21           | 13            |
| Mitigated                    | 94        | 63         | 9            | 5             |
| <b>Option 1 Phase 2</b>      |           |            |              |               |
| Unmitigated                  | 24        | 27         | 3            | 2             |
| Mitigated                    | 24        | 27         | 3            | 2             |

\*Source Receptor Area 16

CalEEMod Output in Appendix (maximum mitigated emissions from on-site construction)

LSTs for the North Orange County source receptor area were compared to the maximum daily construction activities. As seen in Table 8, emissions are below the LST for construction each

phase. LST impacts are less-than-significant. Because LST thresholds would not be exceeded for the more conservative concentrated 5-acre disturbance assumption, they would also not be exceeded if the same emissions are dispersed over a larger project area.

## OPERATIONAL IMPACTS

The proposed residential project will generate 3,617 average daily trips (ADT). Residential uses also generate small quantities of area source emissions derived from organic compounds from cleaning products, landscape maintenance, etc. The contribution of these sources is small and incorporated into the analysis below.

Operational emissions for proposed residential were calculated using CalEEMod 2013.2.2. for a project build-out year of 2020 as shown in Table 9. Calculations assume use of gas hearths as required by SCAQMD Rule 445.

**Table 9**

**Proposed Residential Daily Operational Impacts**

| Source             | Operational Emissions (lbs/day) |             |              |                 |             |            |                 |
|--------------------|---------------------------------|-------------|--------------|-----------------|-------------|------------|-----------------|
|                    | ROG                             | NOx         | CO           | SO <sub>2</sub> | PM-10       | PM-2.5     | CO2             |
| Area               | 16.5                            | 0.4         | 31.3         | 0.0             | 0.6         | 0.6        | 7,305.3         |
| Energy             | 0.3                             | 2.7         | 1.2          | 0.0             | 0.2         | 0.2        | 3,540.5         |
| Mobile             | 10.0                            | 23.0        | 114.3        | 0.4             | 27.8        | 7.7        | 29,404.4        |
| <b>Total</b>       | <b>26.8</b>                     | <b>26.1</b> | <b>146.8</b> | <b>0.4</b>      | <b>28.7</b> | <b>8.5</b> | <b>40,250.2</b> |
| SCAQMD Threshold   | 55                              | 55          | 550          | 150             | 150         | 55         | -               |
| Exceeds Threshold? | No                              | No          | No           | No              | No          | No         | NA              |

Source: CalEEMod Output in Appendix

Project development will not cause the SCAQMD's recommended threshold levels to be exceeded. Operational emissions will be at a less-than-significant level.

## MICROSCALE IMPACT ANALYSIS

There is a direct relationship between traffic/circulation congestion and CO impacts since exhaust fumes from vehicular traffic are the primary source of CO. CO is a localized gas that dissipates very quickly under normal meteorological conditions. Therefore, CO concentrations decrease substantially as distance from the source (intersection) increases. The highest CO concentrations are typically found in areas directly adjacent to congested roadway intersections. These areas of vehicle congestion have the potential to create pockets of elevated levels of CO which are called "hot spots".

Micro-scale air quality impacts have traditionally been analyzed in environmental documents when the air basin was a non-attainment area for carbon monoxide (CO). However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no "hot spots", i.e., locations where emission concentrations expose individuals to elevated risks of adverse health effects, anywhere in SCAB.

To verify this conclusion, a CO screening analysis was performed at all intersections within the project area for which the project traffic report provided data. One-hour CO concentrations were calculated on the sidewalks adjacent to these intersections. The significance of localized project impacts depends on whether the project would cause substantial concentrations of CO. A project is considered to have significant impacts if project-related mobile-source emissions result in an exceedance of the California one-hour and eight-hour CO standards, which are:

- 1-hour = 20 ppm
- 8-hour = 9 ppm

Calculations were made for existing traffic and future time frames for the morning and evening peak hours for the three development scenarios. Combining future project build-out traffic with existing conditions represents a worst-case analysis. The results of the microscale impact analysis are shown in Tables 10 for the 1-hour concentration and Table 11 for the 8-hour concentration.

**Table 10**  
**Option 1 One-Hour CO Concentrations (ppm) \***

| Intersections            | Existing No Project | Existing + Project | 2020 No Project | 2020 + Project | 20235 No Project | 2035 + Project |
|--------------------------|---------------------|--------------------|-----------------|----------------|------------------|----------------|
| <b>AM Peak Hours</b>     |                     |                    |                 |                |                  |                |
| <b>Yorba Linda Blvd/</b> |                     |                    |                 |                |                  |                |
| Las Palomas              | 3.4                 | 3.5                | 3.2             | 3.2            | 3.0              | 3.0            |
| San Antonio              | 3.5                 | 3.6                | 3.2             | 3.3            | 3.1              | 3.1            |
| Yorba Ranch              | 3.5                 | 3.6                | 3.2             | 3.3            | 3.1              | 3.1            |
| La Palma                 | 4.0                 | 4.1                | 3.7             | 3.7            | 3.4              | 3.5            |
| <b>PM Peak Hours</b>     |                     |                    |                 |                |                  |                |
| <b>Yorba Linda Blvd/</b> |                     |                    |                 |                |                  |                |
| Las Palomas              | 3.5                 | 3.6                | 3.2             | 3.3            | 3.0              | 3.1            |
| San Antonio              | 3.5                 | 3.6                | 3.3             | 3.3            | 3.1              | 3.1            |
| Yorba Ranch              | 3.6                 | 3.6                | 3.3             | 3.3            | 3.1              | 3.2            |
| La Palma                 | 4.3                 | 4.4                | 3.8             | 3.9            | 3.7              | 3.7            |

\*including 2.7 ppm background concentration

**Option 2 One-Hour CO Concentrations (ppm) \***

| Intersections            | Existing No Project | Existing + Project | 2020 No Project | 2020 + Project | 20235 No Project | 2035 + Project |
|--------------------------|---------------------|--------------------|-----------------|----------------|------------------|----------------|
| <b>AM Peak Hours</b>     |                     |                    |                 |                |                  |                |
| <b>Yorba Linda Blvd/</b> |                     |                    |                 |                |                  |                |
| Las Palomas              | 3.4                 | 3.5                | 3.2             | 3.2            | 3.0              | 3.0            |
| San Antonio              | 3.5                 | 3.6                | 3.2             | 3.3            | 3.1              | 3.1            |
| Yorba Ranch              | 3.5                 | 3.5                | 3.2             | 3.3            | 3.1              | 3.1            |
| La Palma                 | 4.0                 | 4.1                | 3.7             | 3.7            | 3.4              | 3.5            |
| <b>PM Peak Hours</b>     |                     |                    |                 |                |                  |                |
| <b>Yorba Linda Blvd/</b> |                     |                    |                 |                |                  |                |

|             |     |     |     |     |     |     |
|-------------|-----|-----|-----|-----|-----|-----|
| Las Palomas | 3.5 | 3.6 | 3.2 | 3.3 | 3.0 | 3.1 |
| San Antonio | 3.5 | 3.7 | 3.3 | 3.3 | 3.1 | 3.1 |
| Yorba Ranch | 3.6 | 3.6 | 3.3 | 3.3 | 3.1 | 3.1 |
| La Palma    | 4.3 | 4.4 | 3.8 | 3.8 | 3.7 | 3.7 |

\*including 2.7 ppm background concentration

#### Option 2A One-Hour CO Concentrations (ppm) \*

| Intersections            | Existing No Project | Existing + Project | 2020 No Project | 2020 + Project | 20235 No Project | 2035 + Project |
|--------------------------|---------------------|--------------------|-----------------|----------------|------------------|----------------|
| <b>AM Peak Hours</b>     |                     |                    |                 |                |                  |                |
| <b>Yorba Linda Blvd/</b> |                     |                    |                 |                |                  |                |
| Las Palomas              | 3.5                 | 3.2                | 3.2             | 3.5            | 3.0              | 3.0            |
| San Antonio              | 3.6                 | 3.3                | 3.3             | 3.6            | 3.1              | 3.1            |
| Yorba Ranch              | 3.6                 | 3.3                | 3.3             | 3.6            | 3.1              | 3.1            |
| La Palma                 | 4.1                 | 3.7                | 3.7             | 4.1            | 3.4              | 3.5            |
| <b>PM Peak Hours</b>     |                     |                    |                 |                |                  |                |
| <b>Yorba Linda Blvd/</b> |                     |                    |                 |                |                  |                |
| Las Palomas              | 3.6                 | 3.6                | 3.5             | 3.3            | 3.0              | 3.1            |
| San Antonio              | 3.7                 | 3.7                | 3.5             | 3.3            | 3.1              | 3.1            |
| Yorba Ranch              | 3.6                 | 3.6                | 3.6             | 3.3            | 3.1              | 3.1            |
| La Palma                 | 4.4                 | 4.4                | 4.3             | 3.8            | 3.7              | 3.7            |

\*including 2.7 ppm background concentration

**Table 11**

#### Option 1 8-Hour CO Concentrations (ppm) \*

| Intersections            | Existing No Project | Existing + Project | 2020 No Project | 2020 + Project | 20235 No Project | 2035 + Project |
|--------------------------|---------------------|--------------------|-----------------|----------------|------------------|----------------|
| <b>Yorba Linda Blvd/</b> |                     |                    |                 |                |                  |                |
| Las Palomas              | 2.6                 | 2.6                | 2.4             | 2.4            | 2.3              | 2.3            |
| San Antonio              | 2.6                 | 2.6                | 2.4             | 2.5            | 2.3              | 2.3            |
| Yorba Ranch              | 2.6                 | 2.6                | 2.4             | 2.5            | 2.3              | 2.4            |
| La Palma                 | 3.0                 | 3.0                | 2.7             | 2.8            | 2.6              | 2.6            |

\*including 2.1 ppm background concentration

#### Option 2 8-Hour CO Concentrations (ppm) \*

| Intersections            | Existing No Project | Existing + Project | 2020 No Project | 2020 + Project | 20235 No Project | 2035 + Project |
|--------------------------|---------------------|--------------------|-----------------|----------------|------------------|----------------|
| <b>Yorba Linda Blvd/</b> |                     |                    |                 |                |                  |                |
| Las Palomas              | 2.6                 | 2.6                | 2.4             | 2.4            | 2.3              | 2.3            |
| San Antonio              | 2.7                 | 2.7                | 2.4             | 2.5            | 2.3              | 2.3            |
| Yorba Ranch              | 2.6                 | 2.6                | 2.4             | 2.5            | 2.3              | 2.3            |
| La Palma                 | 3.0                 | 3.0                | 2.7             | 2.7            | 2.6              | 2.6            |

\*including 2.1 ppm background concentration

#### Option 2A 8-Hour CO Concentrations (ppm) \*

| Intersections            | Existing No Project | Existing + Project | 2020 No Project | 2020 + Project | 20235 No Project | 2035 + Project |
|--------------------------|---------------------|--------------------|-----------------|----------------|------------------|----------------|
| <b>Yorba Linda Blvd/</b> |                     |                    |                 |                |                  |                |
| Las Palomas              | 2.6                 | 2.6                | 2.4             | 2.4            | 2.3              | 2.3            |
| San Antonio              | 2.7                 | 2.7                | 2.4             | 2.5            | 2.3              | 2.3            |
| Yorba Ranch              | 2.6                 | 2.6                | 2.4             | 2.5            | 2.3              | 2.3            |
| La Palma                 | 3.0                 | 3.0                | 2.7             | 2.7            | 2.6              | 2.6            |

\*including 2.1 ppm background concentration

The existing peak one-hour local CO background level in 2011 in the project area vicinity was 2.7 ppm. With project implementation, in the existing time frame, inclusive of the local concentration, maximum one-hour concentration is estimated to be 4.4 ppm, which is well below the one-hour standard of 20 ppm. The maximum ambient 8-hour CO concentration in 2011 was 2.1 ppm. Maximum with project 8-hour CO concentration of 3.0 ppm (inclusive of the background concentration) were compared to the 9 ppm significance threshold. Micro-scale air quality impacts are not significant.

## SCREENING LEVEL CONSTRUCTION-RELATED HEALTH RISK ANALYSIS

Combustion emissions from construction equipment would be generated during project construction and could expose adjacent sensitive receptors to DPM and other TACs. The following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines.

### SCAQMD Significance Thresholds Risks and Hazards Construction-Related Significance Thresholds

| Pollutant                                    | Construction-Related Thresholds  |
|--|--|
| Risks and Hazards – TACs & PM <sub>2.5</sub> | Increased cancer risk of >10.0 in a million<br>Increased non-cancer risk of >1.0 Hazard Index (Chronic or Acute) |

DPM exhaust emissions for on-site project construction from off-road heavy equipment were calculated using the CalEEMod 2013.2.2 computer model. CalEEMod estimates construction activities to require approximately six years with downtime for weekends and holidays. CalEEMod calculates that 1.298 tons of combustion DPM will be released throughout the project site. This translates to 0.0493 lb/hour (0.0062 grams/sec) as the AERSCREEN screening dispersion model input emission rate.

The predicted maximum one-hour DPM concentration is 0.291 µg/m<sup>3</sup> resulting from on-site total project DPM emissions. The hourly to annual scaling factor is 0.1. AERSCREEN output thus indicates that project construction will produce a maximum annual DPM concentration of 0.0291µg/m<sup>3</sup>.

The excess individual cancer risk factor for DPM exposure is approximately 300 in a million per 1 µg/m<sup>3</sup> of lifetime exposure of 70 years according to the OEHHA Technical Support Document

(TSD) for Cancer Potency Factors entitled “Methodologies for derivation, listing of available values, and adjustments to allow for early life state exposures” (May2009). More recent research has determined that young children are substantially more sensitive to DPM exposure risk. According to the OEHHA TSD, if exposure occurs in the first several years of life, an age sensitivity factor (ASF) of 10 should be applied. For toddlers though mid-teens, the ASF is 3. The DPM exposure risk from construction exhaust thus depends upon the age of the receptor population during the assumed 6 years of construction. The excess individual cancer risk is as shown on Table 12.

| <b>Age Group</b> | <b>Excess Cancer Risk*</b> |
|------------------|----------------------------|
| Infants          | 4.21 in a million          |
| Children         | 2.24 in a million          |
| Adults           | 0.75 in a million          |

\*DPM ( $\mu\text{g}/\text{m}^3$ ) \* ASF \*  $300 \times 10^{-6}$  /70 years

The maximum individual cancer risk would be below the 10 in a million significance threshold.

**TABLE 12**  
**CANCER RISK AND CHRONIC NON-CANCER HEALTH RISKS AT THE CLOSEST SENSITIVE RECEPTORS DUE TO DPM EXPOSURE DURING PROJECT CONSTRUCTION**

|   | <b>PM<sub>2.5</sub> Exposure, Excess Cancer Risk, and Non-Cancer Chronic Hazard Index from Project Construction Activities at Closest Receptors</b> |
|---|---|
| Maximum One-Hour PM <sub>2.5</sub>  | 0.2911 $\mu\text{g}/\text{m}^3$   |
| Annual Average PM <sub>2.5</sub> (one-hour x 0.1)   | 0.02911 $\mu\text{g}/\text{m}^3$  |
| Age-Weighted Excess Risk for:<br>Infants (2.25 years + 3.75 years youth)<br>Youth (6 years)<br>Adults (6 years)<br>Cancer Risk Significance Threshold<br>Exceeds Threshold? | 4.21 in a million<br>2.24 in a million<br>0.75 in a million<br>Excess Cancer Risk $>10 \times 10^{-6}$<br>No  |
| Chronic Non-Cancer Hazard Index<br>Chronic Non-Cancer Significance Threshold<br>Exceeds Significance Threshold?   | 0.006<br>Hazard Index $>1.0$<br>No  |

SOURCES: A screening-level individual cancer analysis was conducted to determine the maximum PM2.5 concentration from diesel exhaust. This concentration was combined with the DPM exposure unit risk factor to calculate the inhalation cancer risk from project-related construction activities at the closest sensitive receptor. The EPA AERSCREEN air dispersion model was used to evaluate concentrations of DPM and PM2.5 from diesel exhaust. The AERSCREEN model was developed to provide an easy to use method of obtaining pollutant concentration estimates and is a single source Gaussian plume model which provides a maximum one-hour ground-level concentration. The model output for this analysis is included in this report.

Consistent with EPA/ARB/SCAQMD guidelines, the screening level impact analysis was conducted for the

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maximum exposed individual (MEI) for outdoor exposure for 24 hours per day, 350 days per year, for 6 years of construction. Any other sensitive receptor exposure (schools, parks, etc,) will be less than this maximum.

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## **OIL WELL PROXIMITY HEALTH HAZARD**

Oil wells may release fugitive hydrocarbons from loose seals, spillage or other evaporative sources. The primary carcinogen associated with petroleum products is benzene. The cancer potential of benzene is reported by OEHHA to be 29 cases per million per 1  $\mu\text{g}/\text{m}^3$  lifetime exposure. It is not known if the remaining on-site oil wells will produce for the next 70 years and in what quantity of production. A very definitive cancer risk study was prepared by the USC Keck School of Medicine to assess the proximity of oil wells to students at Beverly Hills High School (2003). The findings of the study concluded:

“A few studies have linked Hodgkin’s lymphoma to areas of high traffic density or oil refineries, but these studies are ecological (not based on individual data) based on cancers in different age groups. And the authors themselves have stated that the findings are likely to be due to chance. Many more studies have been published showing no link between oil refineries or petroleum products and these types of cancers. We are continually monitoring cancer incidence in Los Angeles County and have not observed increases in these types of cancers in areas close to active oil wells.”

The author of the study, Dr. Wendy Cozen, again concluded that her review of the scientific literature turned up no connection between oil-well emissions and Hodgkin’s disease, non-Hodgkin’s lymphoma or thyroid cancer associated with benzene exposure (Los Angeles Times, May 7, 2003). The scientific community agrees that there is no supporting evidence to suggest that oil well proximity poses an unacceptable health risk.

## **NATURALLY OCCURING ASBESTOS (NOA)**

Any temporary surface disturbance may create dust that contains non-inert components. The most potentially significant “natural” pollutants in fugitive dust are naturally occurring asbestos (NOA) and crystalline silica (CS). NOA is a known human carcinogen. CS is a hazardous air contaminant.

The possible presence of these materials depends upon the geomorphology of the underlying rock of a given site. Asbestos occurs naturally in ultramafic rock (which includes serpentine). When this material is disturbed in connection with construction, grading, quarrying, or surface mining operations, asbestos-containing dust can be generated. Exposure to asbestos can result in health ailments such as lung cancer, mesothelioma (cancer of the linings of the lungs and abdomen), and asbestosis (scarring of lung tissues that results in constricted breathing).

California Air Resources Board (ARB) approved an Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations in July 2001. The regulation requires application of best management practices to control fugitive dust in areas

known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a “Dust Mitigation Plan” and approval by the air district prior to the start of a project

The California ARB keep a list of areas for which there are reported natural occurrences of asbestos ([ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ms/59/asbestos\\_sites.pdf](ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ms/59/asbestos_sites.pdf)). The project area is not included on this list. Dust generation from excavation and grading will have negligible potential for generation of any hazardous materials. NOA emissions and associated impact potential is negligible.

## **CONSTRUCTION EMISSIONS MITIGATION**

In the absence of any mitigation project-related air quality impacts were shown to be potentially significant during project grading due to off-road diesel equipment NOx emissions. PM-10 (fugitive dust and equipment exhaust soot) emissions are predicted to remain below the SCAQMD CEQA significance threshold. However, the anticipated long construction duration and the volume of earthworks movement requires use of best management practices for dust control.

### **Fugitive Dust Control (PM-10)**

- Apply soil stabilizers or moisten inactive areas.
- Prepare a high wind dust control plan.
- Address previously disturbed areas if subsequent construction is delayed.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 3 times/day).
- Wet down or cover all stock piles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand, or loose material or require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site
- Use perimeter sandbags and wind fences for erosion control

NOx is calculated to potentially exceed SCAQMD CEQA thresholds during site grading. The use of enhanced control measures for diesel exhaust is required to maintain NOx emissions at less-than-significant levels. Combustion diesel exhaust emissions control includes:

### **Exhaust Emissions Control (NOx)**

- Utilize well-tuned off-road construction equipment.
- During grading activities require that contractors employ Tier 3 certified heavy equipment during grading for excavators, graders and scrapers exceeding 100 HP rated power if the entire project is graded at one time for NOx emissions unless use of such mitigation is demonstrated to be technically infeasible for a given piece of equipment.
- Enforce the California Air Resource Board 5-minute idling limits for both vehicles and off-road equipment.

## **OPERATIONAL EMISSIONS MITIGATION**

Operational emissions are not anticipated to exceed their respective SCAQMD significance thresholds.

## GREENHOUSE GAS EMISSIONS

“Greenhouse gases” (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as “global warming.” These greenhouse gases contribute to an increase in the temperature of the earth’s atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statutes and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California’s reputation as a “national and international leader on energy conservation and environmental stewardship.” It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate “early action” control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California’s GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been

developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

### **Greenhouse Gas Emissions Significance Thresholds**

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,
- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to “select the model or methodology it considers most appropriate.” The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO<sub>2</sub> equivalent/year. In September 2010, the Working Group released revisions which recommended a threshold of 3,500 MT CO<sub>2</sub>e for residential projects. This 3,500 MT/year recommendation has been used as a guideline for this analysis. Some jurisdictions have adopted a numerical annual GHG emissions level as a CEQA threshold of significance. Others, such as Orange County, have taken the numerical threshold to be an indicator level that signals a requirement for incorporating reasonable and feasible enhanced “green” building practices without formal adoption of an absolute significance standard.

## **Construction Activity GHG Emissions**

The build-out timetable for this project is estimated by CalEEMod to be 6 years. During project construction, the CalEEMod computer model predicts that the constructions activities will generate the annual CO<sub>2</sub>(e) emissions identified in Table 12.

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level from is also provided in Table 13. GHG impacts from construction are considered individually less-than-significant

**Table 13**  
**Construction Emissions (Metric Tons CO<sub>2</sub>(e))**

| Phase 1              | <b>Option 1</b> |
|----------------------|-----------------|
| Year 2015            | 1165.0          |
| Year 2016            | 536.5           |
| Year 2017            | 525.1           |
| Year 2018            | 284.4           |
| Phase 2              |                 |
| Year 2018            | 469.7           |
| Year 2019            | 424.0           |
| Year 2020            | 15.7            |
| <b>Overall Total</b> | <b>3420.4</b>   |
| <b>Amortized</b>     | <b>114.0</b>    |

\*CalEEMod Output provided in appendix

## **Project Operational GHG Emissions**

The input assumptions for operational GHG emissions calculations, and the GHG conversion from consumption to annual regional CO<sub>2</sub>(e) emissions are summarized in the CalEEMod output files found in the appendix of this report.

The total operational and annualized construction emissions are identified in Table 14.

**Table 14**  
**Proposed Residential Operational Emissions**

| <b>Consumption Source</b> | <b>MT CO<sub>2</sub>(e) tons/year</b> |
|---------------------------|---------------------------------------|
| Area Sources              | 88.7                                  |
| Energy Utilization        | 1,356.1                               |
| Mobile Source             | 4,440.5                               |
| Solid Waste Generation    | 201.6                                 |
| Water Consumption         | 172.2                                 |
| Annualized Construction   | 1,14.0                                |
| <b>Total</b>              | <b>6,373.0</b>                        |

Total project GHG emissions are substantially above the proposed significance threshold of 3,500 MT. GHG emissions for the proposed project are considered potentially significant. That finding requires consideration/implementation of reasonably available control measures.

The second GHG emissions significance evaluation relates to consistency with GHG plans and policies. Consistency with GHG plans and policies is typically evaluated relative to AB-32 requirements. AB-32 has a goal of a 28.9 percent reduction in statewide GHG emissions compared to the business-as-usual (BAU) scenario. In preparing the impact analysis for the Esperanza Hills, BAU conditions were conservatively presumed to continue throughout the lifetime of the project. However, a number of statewide programs are in place that will achieve GHG emissions reductions that will attain a very substantial fraction of the AB-32 goal. SCAQMD has estimated that, as shown in Table 15, the adopted low carbon fuel standard, the enhanced renewable portfolio standard, and required enhanced energy efficiencies will combine to achieve 23.9 percent of the 28.9 percent AB-32 goal.

If the remaining 5 percent of GHG reductions can be achieved by local AB-32 initiatives, then the proposed action would not interfere with timely implementation of AB 32. If it can be demonstrated that more than adequate options exist to attain the local mitigation responsibility, mitigation would not be considered to be deferred even if the development plan is not yet finalized. In the absence of an adopted Orange County Climate Action Plan (CAP), reasonable and feasible mitigation measures were evaluated that could achieve the 5 percent reduction as an interim measure to be taken prior to any CAP adoption.

**Table 15**  
**GHG Emissions Reductions from State Regulations**

| <b>Category</b> | <b>Source</b>                    | <b>Percent of Category</b> | <b>Percent of State Total</b> |
|-----------------|----------------------------------|----------------------------|-------------------------------|
| <b>Mobile</b>   | AB 1493                          | 19.7%                      | 8.9%                          |
|                 | LCFS-auto                        | 7.2%                       | 3.2%                          |
|                 | LCFS-medium                      | 7.2%                       | 0.4%                          |
|                 | Truck efficiency                 | 2.9%                       | 0.2%                          |
|                 | Passenger efficiency             | 2.8%                       | 1.3%                          |
| <b>Area</b>     | Res. Energy Efficiency (gas)     | 9.5%                       | 1.0%                          |
|                 | Non-Res. Energy Efficiency (gas) | 9.5%                       | 1.0%                          |
| <b>Indirect</b> | RPS                              | 21.0%                      | 3.5%                          |
|                 | Energy efficiency (elec)         | 15.7%                      | 4.0%                          |
|                 | Solar roofs                      | 1.5%                       | 0.2%                          |
| <b>Total</b>    |                                  |                            | <b>23.9%</b>                  |

LCFS = low carbon fuel standard

RPS = renewable portfolio standard

*Totals may not sum due to rounding.*

Source: <http://www.aqmd.gov/ceqa/handbook/GHG/2009/nov19mtg/ghgmt14.pdf>

The California Air Pollution Control Officers Association (CAPCOA) is one of several groups that has developed candidate GHG reduction programs to supplement the statewide AB-32 compliance program. CAPCOA's "CEQA and Climate Change" (2010) is one of the most detailed and annotated mitigation plans outlined. Because it is so comprehensive, and because it quantifies the potential measure effectiveness in great detail, it was applied to the preliminary Esperanza Hills GHG Mitigation Plan.

Five general categories of emissions reduction potential were evaluated, including transportation control measures, energy conservation enhancement, water supply, solid waste generation and miscellaneous measures. Tables 15A through 15E present a detailed breakdown of the mitigation measures and levels of emissions reduction potential that CAPCOA considers feasible on a project-level basis. In presenting the potential effectiveness, the CAPCOA document presents a percent range of documented results. In Tables 15A through 15E, the low end of the effectiveness range is presented. This is considered appropriate because the implementation of multiple programs simultaneously tends to result in duplicated efforts, which reduces the effectiveness of each measure. For example, while some measures may achieve a 3 to 5 percent capture rate independently, they may not achieve maximum efficiency when a larger array of “green” options is employed. Table 16 summarizes the GHG reductions attainable with the application of reasonably available control measures (RACM).

It is assumed that the project area will eventually be annexed to Yorba Linda. The City has requested that the County consult with the City with regard to sustainability initiatives planned to be incorporated as project design features to reduce GHG emissions/climate change impacts. The City, like the County, has no formally adopted climate action plan (CAP). However, any adoption and implementation of mitigation measures for GHG impact minimization under Orange County CEQA responsibilities will be equally effective if the project site is ultimately annexed to the City of Yorba Linda. In recognition of the constant advances in emissions control strategies and technologies, no specific measures in Tables 15A through 15E are proposed for use as mitigation measures on the proposed project. Rather, the proposed mitigation is for the County and project proponent to select an appropriate set of control measures for implementation on the project site prior to first occupancy. These control measures must, in sum, achieve the required 5 percent reduction in GHG emissions. The following is the text of the recommended mitigation measure:

**MM GHG:** *Prior to occupancy of project facilities, the developer/permit holder will implement or develop a plan for implementation of one or more mitigation strategies for the reduction of greenhouse gas (GHG) emissions from the report “CEQA and Climate Change” prepared by the California Air Pollution Control Officers Association (CAPCOA) as updated in 2010. The total benefit of the mitigation strategies must result in a minimum 5 percent reduction in GHG emissions from the business-as-usual value. Alternative strategies not listed in the CAPCOA report may be used with approval of the Orange County Planning Director. The selected strategies, including measures for their long-term maintenance, must be described in a memo submitted to and approved by the County Planning Department prior to initial occupancy of any on-site facility.*

**TABLE 15A**

| <b>Transportation Control Measures</b>            | <b>Effectiveness</b> |
|---|----------------------|
| Bus Shelters for Future Transit                   | 1.0%                 |
| Pedestrian Access and Paths through Parking Areas | 1.0%                 |
| Voluntary Rideshare w/ Incentives                 | 1.0%                 |
| Preferential Parking for EVs and Hybrids          | 1.0%                 |
| Electric Vehicle Charge Stations                  | 1.0%                 |
| Total (Transportation)                            | 5.0%                 |

Source: CAPCOA (2008), Chapter 7

**TABLE 15B**

| <b>Energy Efficiency</b>            | <b>Effectiveness</b> |
|-------------------------------------|----------------------|
| Energy Star and Cool Roofs          | 0.5%                 |
| On-Site Solar Panels on Flat Roofs  | 2.0%                 |
| Exceed Title 24 Requirements by 10% | 3.0%                 |
| Solar Orientation of Buildings      | 0.5%                 |
| Low Energy Cooling                  | 0.5%                 |
| Energy Star Appliances              | 0.5%                 |
| “Green Building” Materials          | 0.25%                |
| Shading Mechanisms                  | 0.25%                |
| High Efficiency Lighting Systems    | 0.5%                 |
| Total Energy Conservation           | 8.0%                 |

Source: CAPCOA (2008), Chapter 7

**TABLE 15C**

| <b>Water Supply</b>       | <b>Effectiveness</b> |
|---------------------------|----------------------|
| Use Reclaimed Water       | 0.5%                 |
| Low Flow Fixtures         | 0.5%                 |
| Water Efficient Landscape | 5.0%                 |
| Total                     | 6.0%                 |

Source: CAPCOA (2008), Chapter 7

**TABLE 15D**

| <b>Solid Waste</b>                   | <b>Effectiveness</b> |
|--------------------------------------|----------------------|
| Enhanced Recycling/Recovery Programs | 10.0%                |
| Reuse Cut-and-Fill                   | 10.0%                |
| Total                                | 20.0%                |

Source: CAPCOA (2008), Chapter 7

**TABLE 15E**

| Miscellaneous Measures                  | Effectiveness           | Reduction |
|---|-------------------------|-----------|
| Electric Lawnmowers                     | Benefits Not Quantified |           |
| Enhanced Recycling, Reduction and Reuse |                         |           |
| LEED Certification                      |                         |           |
| Drought Resistant Landscaping           |                         |           |
| Local Farmer's Markets                  |                         |           |

**Table 16**  
**GHG Reductions Attainable with RCM Implementation**

| Category               | Applies To:     | Overall Effectiveness <sup>a</sup> | Overall Percent Reduction <sup>b</sup> | Annual MT Tons Reduced |
|------------------------|-----------------|------------------------------------|--|------------------------|
| Transportation Control | Transportation  | 5.0%                               | 3.3%                                   | 227                    |
| Water Supply           | Water Use       | 6.0%                               | 0.1%                                   | 10                     |
| Solid Waste            | Solid Waste     | 20.0%                              | 0.6%                                   | 40                     |
| Energy Efficiency      | Electric and NG | 8.0%                               | 1.8%                                   | 126                    |
| Miscellaneous          | All             | unknown                            | unknown                                | na                     |
| <b>Total</b>           |                 |                                    | <b>5.8%</b>                            | <b>403</b>             |

<sup>a</sup> – percentage reduction within a given source category

<sup>b</sup> – effectiveness within a given source category times the source category share of the total burden

With feasible options and realistic expectations of effectiveness, mitigation levels exceeding the local goal of 5 percent can be demonstrated. Achievement of this emissions reduction goal would require the implementation of the proposed mitigation measures provided above. With available options, project compliance with AB-32 goals and policies can be assured with a reasonable margin of safety.

## SUMMARY

As shown in Table 16, the size of the project is such that direct and indirect GHG emissions will exceed the SCAQMD screening level threshold (3,500 MTCO<sub>2</sub>e per year) for residential projects by a large margin. This finding is based upon a business-as-usual assumption and does not include statewide or locally sponsored mitigation. State program reductions reduce the emissions figure in the BAU scenario by 23.9 percent. Feasible local reductions, as summarized in Table 15, would result in an additional 5.8 percent reduction. Specific local reductions to be implemented on the site would be determined prior to project occupancy based on then-current strategies and technologies, with additional coordination between the project proponent and the City of Yorba Linda. However, even with implementation of required and discretionary GHG reduction measures, annual emissions cannot be reduced below the SCAQMD's advisory threshold.

## **APPENDIX**

### **CalEEMod2013.2.2 Computer Model Output**

#### **Option 1 Phase 1**

- Daily Emissions (lbs per day)
- Annual Emissions (tons per year)

#### **Option 1 Phase 2**

- Daily Emissions (lbs per day)
- Annual Emissions (tons per year)

### **Operational Emissions 2020**

### **CalEEMod Input and Defaults**

### **CO Screening Protocols Microscale Analysis Input Data**

## CalEEMod Defaults and Modeled Data

### Phase 1

| <b>Activity</b> | <b>CalEE Default # Days</b> | <b>Modeled # Days</b> | <b>CalEE Default Equipment</b> | <b>Modeled Equipment</b> |
|-----------------|-----------------------------|-----------------------|--------------------------------|--------------------------|
| Site Prep       | 40                          | 30                    | 3 Dozers                       | 3 Dozers                 |
|                 |                             |                       | 4 Backhoes                     | 4 Backhoes               |
| Grading         | 110                         | 175                   | 2 Excavators                   | 2 Excavators             |
|                 |                             |                       | 1 Grader                       | 2 Graders                |
|                 |                             |                       | 1 Dozer                        | 1 Dozer                  |
|                 |                             |                       | 2 Scrapers                     | 5 Scrapers               |
|                 |                             |                       | 2 Loader/Backhoes              | 2 Loader/Backhoes        |
| Construction    | 1110                        | 700                   | 1 Crane                        | 1 Crane                  |
|                 |                             |                       | 3 Forklifts                    | 3 Forklifts              |
|                 |                             |                       | 1 Gen Set                      | 1 Gen Set                |
|                 |                             |                       | 3 Loader/Backhoes              | 3 Loader/Backhoes        |
|                 |                             |                       | 1 Welder                       | 1 Welder                 |
| Paving          | 75                          | 15                    | 2 Pavers                       | 2 Pavers                 |
|                 |                             |                       | 2 Paving Equipment             | 2 Paving Equipment       |
|                 |                             |                       | 2 Rollers                      | 2 Rollers                |

### Phase 2

| <b>Activity</b> | <b>CalEE Default # Days</b> | <b>Modeled # Days</b> | <b>CalEE Default Equipment</b> | <b>Modeled Equipment</b> |
|-----------------|-----------------------------|-----------------------|--------------------------------|--------------------------|
| Construction    | 1110                        | 500                   | 1 Crane                        | 1 Crane                  |
|                 |                             |                       | 3 Forklifts                    | 3 Forklifts              |
|                 |                             |                       | 1 Gen Set                      | 1 Gen Set                |
|                 |                             |                       | 3 Loader/Backhoes              | 3 Loader/Backhoes        |
|                 |                             |                       | 1 Welder                       | 1 Welder                 |
| Paving          | 75                          | 15                    | 2 Pavers                       | 2 Pavers                 |
|                 |                             |                       | 2 Paving Equipment             | 2 Paving Equipment       |
|                 |                             |                       | 2 Rollers                      | 2 Rollers                |

## CO SCREENING ANALYSIS PROTOCOLS

(Bay Area AQMD CEQA Guidelines, modified to include congestion/delay)

$$\begin{aligned} \text{CO(1-hour)} = & \text{ Vol (major in) * Emfac(25 mph) * DF(major)} \\ & + \text{ Vol (major in) * Sec. Delay * Idle (3 mph) * DF(major)} \\ & + \text{ Vol(major out) * Emfac(25 mph) * DF(major)} \\ & + \text{ Vol(minor in) * Emfac(25 mph) * DF(minor)} \\ & + \text{ Vol(minor in) * Sec. delay * Idle(3 mph) * DF(minor)} \\ & + \text{ Vol(minor out) * Emfac(25 mph) * DF(minor)} \end{aligned}$$

$$\text{DF(major)} = 6.1 / 100,000$$

$$\text{Delay} = 2.5 \text{ sec LOS=A}$$

$$= 10.0 \text{ sec LOS=B}$$

$$= 20.0 \text{ sec LOS=C}$$

$$= 32.5 \text{ sec LOS=D}$$

$$= 50.0 \text{ sec LOS=E}$$

$$= 75.0 \text{ sec LOS=F}$$

$$\text{DF(minor)} = 2.7 / 100,000$$

| Year | Emfac(25) (g/mi) | Idle(3) (g/sec/mile) |
|------|------------------|----------------------|
| 2015 | 4.69             | 0.052                |
| 2020 | 3.28             | 0.052                |
| 2025 | 2.47             | 0.054                |
| 2030 | 2.08             | 0.056                |

Source: EMFAC2007

$$\text{CO(8-hour)} = \text{CO(1-hour)} * 0.6 \text{ (persistence)}$$

## Data Used for Microscale Analysis (from turning movements in Traffic Report)

| <u>AM - Existing</u>                     |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
|--|-------------|-----------------|------------------|-----------------|------------------|------------|
| Yorba Linda Blvd/                        | Las Palomas | 1081            | 812              | 160             | 71               | A          |
|  | San Antonio | 1184            | 1044             | 185             | 78               | A          |
|  | Yorba Ranch | 1166            | 1019             | 110             | 140              | A          |
|  | La Palma    | 1338            | 1516             | 1257            | 739              | C          |
| <u>AM - Existing + Project, Option 1</u> |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                        | Las Palomas | 1208            | 855              | 166             | 88               | A          |
|  | San Antonio | 1311            | 1083             | 185             | 78               | A          |
|  | Yorba Ranch | 1299            | 1064             | 112             | 146              | A          |
|  | La Palma    | 1412            | 1542             | 1258            | 741              | C          |
| <u>AM - 2020</u>                         |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                        | Las Palomas | 1177            | 939              | 175             | 82               | A          |
|  | San Antonio | 1339            | 1199             | 201             | 85               | A          |
|  | Yorba Ranch | 1322            | 1166             | 118             | 54               | A          |
|  | La Palma    | 1500            | 1664             | 1358            | 801              | D          |
| <u>AM - 2020 + Project, Option 1</u>     |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                        | Las Palomas | 1304            | 982              | 181             | 99               | A          |
|  | San Antonio | 1466            | 1242             | 201             | 85               | A          |
|  | Yorba Ranch | 1455            | 1211             | 120             | 160              | A          |
|  | La Palma    | 1574            | 1690             | 1359            | 803              | D          |
| <u>AM - 2035</u>                         |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                        | Las Palomas | 1179            | 942              | 206             | 123              | A          |
|  | San Antonio | 1398            | 1235             | 201             | 85               | A          |
|  | Yorba Ranch | 1509            | 1279             | 137             | 172              | A          |
|  | La Palma    | 1651            | 1832             | 1494            | 886              | D          |

| <u>AM - 2035 + Project, Option 1</u>      |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
|---|-------------|-----------------|------------------|-----------------|------------------|------------|
| Yorba Linda Blvd/                         | Las Palomas | 1306            | 985              | 212             | 140              | A          |
|   | San Antonio | 1526            | 1283             | 201             | 85               | A          |
|   | Yorba Ranch | 1643            | 1323             | 139             | 178              | A          |
|   | La Palma    | 1725            | 1858             | 1495            | 888              | D          |
| <u>AM - Existing + Project, Option 2</u>  |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                         | Las Palomas | 1208            | 855              | 166             | 88               | A          |
|   | San Antonio | 1213            | 1129             | 397             | 150              | A          |
|   | Yorba Ranch | 1193            | 1097             | 112             | 146              | A          |
|   | La Palma    | 1412            | 1542             | 1258            | 741              | C          |
| <u>AM - 2020 + Project, Option 2</u>      |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                         | Las Palomas | 1304            | 982              | 181             | 99               | A          |
|   | San Antonio | 1143            | 1488             | 413             | 157              | A          |
|   | Yorba Ranch | 1349            | 1244             | 120             | 160              | A          |
|   | La Palma    | 1574            | 1690             | 1359            | 803              | D          |
| <u>AM - 2035 + Project, Option 2</u>      |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                         | Las Palomas | 1306            | 985              | 212             | 140              | A          |
|   | San Antonio | 1427            | 1325             | 413             | 157              | A          |
|   | Yorba Ranch | 1536            | 1357             | 139             | 178              | A          |
|   | La Palma    | 1725            | 1858             | 1495            | 888              | D          |
| <u>AM - Existing + Project, Option 2A</u> |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                         | Las Palomas | 1208            | 855              | 166             | 88               | A          |
|   | San Antonio | 1213            | 1129             | 397             | 150              | A          |
|   | Yorba Ranch | 1193            | 1097             | 112             | 146              | A          |
|   | La Palma    | 1412            | 1542             | 1258            | 741              | C          |
| <u>AM - 2020 + Project, Option 2A</u>     |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                         | Las Palomas | 1304            | 982              | 181             | 99               | A          |
|   | San Antonio | 1368            | 1284             | 413             | 157              | A          |
|   | Yorba Ranch | 1349            | 1244             | 120             | 160              | A          |

|  |             |                 |                  |                 |                  |            |
|--|-------------|-----------------|------------------|-----------------|------------------|------------|
|  | La Palma    | 1574            | 1690             | 1359            | 803              | D          |
| <u>AM - 2035 + Project, Option 2A</u>    |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                        | Las Palomas | 1306            | 985              | 212             | 140              | A          |
|  | San Antonio | 1427            | 1325             | 413             | 157              | A          |
|  | Yorba Ranch | 1536            | 1357             | 139             | 178              | A          |
|  | La Palma    | 1725            | 1858             | 1487            | 888              | D          |
| <u>PM - Existing</u>                     |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                        | Las Palomas | 1147            | 977              | 168             | 175              | A          |
|  | San Antonio | 1238            | 1030             | 131             | 130              | A          |
|  | Yorba Ranch | 1258            | 1080             | 132             | 140              | A          |
|  | La Palma    | 2160            | 1526             | 1057            | 588              | C          |
| <u>PM - Existing + Project, Option 1</u> |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                        | Las Palomas | 1273            | 1050             | 187             | 186              | A          |
|  | San Antonio | 1383            | 1114             | 131             | 130              | A          |
|  | Yorba Ranch | 1403            | 1164             | 139             | 144              | A          |
|  | La Palma    | 2240            | 1572             | 1059            | 589              | C          |
| <u>PM - 2020</u>                         |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                        | Las Palomas | 1256            | 1114             | 182             | 199              | A          |
|  | San Antonio | 1420            | 1197             | 148             | 146              | A          |
|  | Yorba Ranch | 1443            | 1255             | 144             | 155              | A          |
|  | La Palma    | 2395            | 1692             | 1150            | 640              | C          |
| <u>PM - 2020 + Project, Option 1</u>     |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                        | Las Palomas | 1382            | 1187             | 201             | 199              | B          |
|  | San Antonio | 1565            | 1281             | 148             | 146              | A          |
|  | Yorba Ranch | 1588            | 1339             | 151             | 155              | A          |

|             |      |      |      |     |   |
|-------------|------|------|------|-----|---|
| La<br>Palma | 2475 | 1738 | 1150 | 640 | D |
|-------------|------|------|------|-----|---|

| <u>PM - 2035</u>     |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
|----------------------|-------------|-----------------|------------------|-----------------|------------------|------------|
| Yorba Linda<br>Blvd/ | Las Palomas | 1287            | 1134             | 202             | 219              | A          |
|                      | San Antonio | 1493            | 1256             | 161             | 146              | A          |
|                      | Yorba Ranch | 1621            | 1362             | 162             | 174              | A          |
|                      | La<br>Palma | 2635            | 1867             | 1261            | 692              | D          |

  

| <u>PM - 2035 + Project, Option<br/>1</u> |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
|--|-------------|-----------------|------------------|-----------------|------------------|------------|
| Yorba Linda<br>Blvd/                     | Las Palomas | 1413            | 1207             | 221             | 230              | B          |
|  | San Antonio | 1638            | 1340             | 161             | 146              | A          |
|  | Yorba Ranch | 1767            | 1447             | 169             | 178              | B          |
|  | La<br>Palma | 2715            | 1908             | 1263            | 693              | D          |

### Esperanza Hills

Turning Movements, p.4

| <u>PM - Existing + Project, Option 2</u> |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
|--|-------------|-----------------|------------------|-----------------|------------------|------------|
| Yorba Linda<br>Blvd/                     | Las Palomas | 1152            | 1376             | 187             | 186              | A          |
|  | San Antonio | 1383            | 1114             | 271             | 372              | A          |
|  | Yorba Ranch | 1314            | 1177             | 139             | 144              | A          |
|  | La<br>Palma | 2240            | 1572             | 1059            | 589              | C          |

| <u>PM - 2020 + Project, Option<br/>2</u> |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
|--|-------------|-----------------|------------------|-----------------|------------------|------------|
| Yorba Linda<br>Blvd/                     | Las Palomas | 1382            | 1187             | 201             | 199              | A          |
|  | San Antonio | 1565            | 1281             | 288             | 388              | A          |
|  | Yorba Ranch | 1499            | 1352             | 151             | 155              | A          |
|  | La<br>Palma | 2475            | 1738             | 1150            | 640              | C          |

| <u>PM - 2035 + Project, Option</u> | <u>Major In</u> | <u>Major</u> | <u>Minor In</u> | <u>Minor</u> | <u>LOS</u> |
|------------------------------------|-----------------|--------------|-----------------|--------------|------------|
|------------------------------------|-----------------|--------------|-----------------|--------------|------------|

2

|   |             |                 | <u>Out</u>       |                 | <u>Out</u>       |            |
|---|-------------|-----------------|------------------|-----------------|------------------|------------|
|   |             |                 | <u>Major</u>     | <u>Minor</u>    | <u>Minor</u>     |            |
|   |             |                 | <u>Out</u>       | <u>In</u>       | <u>Out</u>       | <u>LOS</u> |
| Yorba Linda Blvd/                         | Las Palomas | 1413            | 1207             | 221             | 230              | B          |
|   | San Antonio | 1638            | 1340             | 301             | 388              | A          |
|   | Yorba Ranch | 1677            | 1459             | 169             | 178              | A          |
|   | La Palma    | 2715            | 1908             | 1263            | 693              | D          |
|   |             |                 |                  |                 |                  |            |
| <u>PM - Existing + Project, Option 2A</u> |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                         | Las Palomas | 1273            | 1050             | 187             | 186              | A          |
|   | San Antonio | 1383            | 1114             | 271             | 372              | A          |
|   | Yorba Ranch | 1314            | 1177             | 139             | 144              | A          |
|   | La Palma    | 2240            | 1572             | 1059            | 589              | C          |
|   |             |                 |                  |                 |                  |            |
| <u>PM - 2020 + Project, Option 2A</u>     |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                         | Las Palomas | 1382            | 1187             | 201             | 199              | A          |
|   | San Antonio | 1565            | 1281             | 288             | 388              | A          |
|   | Yorba Ranch | 1499            | 1352             | 151             | 155              | A          |
|   | La Palma    | 2475            | 1738             | 1150            | 640              | C          |
|   |             |                 |                  |                 |                  |            |
| <u>PM - 2035 + Project, Option 2A</u>     |             | <u>Major In</u> | <u>Major Out</u> | <u>Minor In</u> | <u>Minor Out</u> | <u>LOS</u> |
| Yorba Linda Blvd/                         | Las Palomas | 1413            | 1207             | 221             | 230              | B          |
|   | San Antonio | 1638            | 1340             | 301             | 388              | A          |
|   | Yorba Ranch | 1677            | 1459             | 169             | 178              | A          |
|   | La Palma    | 2715            | 1908             | 1263            | 693              | D          |
|   |             |                 |                  |                 |                  |            |

**Esperanza Option 1 P1**  
**South Coast AQMD Air District, Summer**

## 1.0 Project Characteristics

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### 1.1 Land Usage

| Land Uses             | Size   | Metric        | Lot Acreage | Floor Surface Area | Population |
|-----------------------|--------|---------------|-------------|--------------------|------------|
| Single Family Housing | 218.00 | Dwelling Unit | 70.78       | 392,400.00         | 623        |

### 1.2 Other Project Characteristics

|                            |                            |                            |       |                            |       |
|----------------------------|----------------------------|----------------------------|-------|----------------------------|-------|
| Urbanization               | Urban                      | Wind Speed (m/s)           | 2.2   | Precipitation Freq (Days)  | 31    |
| Climate Zone               | 8                          |                            |       | Operational Year           | 2018  |
| Utility Company            | Southern California Edison |                            |       |                            |       |
| CO2 Intensity<br>(lb/MWhr) | 630.89                     | CH4 Intensity<br>(lb/MWhr) | 0.029 | N2O Intensity<br>(lb/MWhr) | 0.006 |

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

**Project Characteristics -****Land Use -**

Construction Phase - Prep 30 days, Grading 175 days, Construction 700 days, Paving 15 days

Off-road Equipment - Prep: 3 dozers, 4 loader/backhoes

Off-road Equipment - Grading: 2 excavators, 2 graders (default is 1), 1 dozer, 5 scrapers (default is 2) 2 loader/backhoes

Off-road Equipment - Construction 1 crane, 3 f/l, 1 gen set, 3 loader/backhoes, 1 welder

Off-road Equipment - Paving: 2 pavers, 2 paving equipment, 2 rollers

Grading - 286700 CY Borrow

Trips and VMT - 35838 haul trips, 1000 ft

Construction Off-road Equipment Mitigation - Tier 3 for scrapers, dozers, excavators and graders

**Area Mitigation -**

| Table Name                | Column Name                | Default Value | New Value  |
|---------------------------|----------------------------|---------------|------------|
| tblConstEquipMitigation   | NumberOfEquipmentMitigated | 0.00          | 2.00       |
| tblConstEquipMitigation   | NumberOfEquipmentMitigated | 0.00          | 2.00       |
| tblConstEquipMitigation   | NumberOfEquipmentMitigated | 0.00          | 4.00       |
| tblConstEquipMitigation   | NumberOfEquipmentMitigated | 0.00          | 5.00       |
| tblConstEquipMitigation   | Tier                       | No Change     | Tier 3     |
| tblConstEquipMitigation   | Tier                       | No Change     | Tier 3     |
| tblConstEquipMitigation   | Tier                       | No Change     | Tier 3     |
| tblConstEquipMitigation   | Tier                       | No Change     | Tier 3     |
| tblConstructionPhase      | NumDays                    | 75.00         | 700.00     |
| tblConstructionPhase      | NumDays                    | 1,110.00      | 700.00     |
| tblConstructionPhase      | NumDays                    | 110.00        | 175.00     |
| tblConstructionPhase      | NumDays                    | 75.00         | 15.00      |
| tblConstructionPhase      | NumDays                    | 40.00         | 30.00      |
| tblConstructionPhase      | PhaseEndDate               | 3/12/2021     | 7/8/2018   |
| tblConstructionPhase      | PhaseEndDate               | 6/20/2018     | 7/6/2018   |
| tblConstructionPhase      | PhaseStartDate             | 7/7/2018      | 11/1/2015  |
| tblConstructionPhase      | PhaseStartDate             | 10/15/2015    | 11/1/2015  |
| tblConstructionPhase      | PhaseStartDate             | 7/9/2018      | 7/7/2018   |
| tblGrading                | AcresOfGrading             | 1,050.00      | 275.00     |
| tblGrading                | MaterialImported           | 0.00          | 286,700.00 |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 1.00          | 2.00       |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 2.00          | 5.00       |
| tblProjectCharacteristics | OperationalYear            | 2014          | 2018       |
| tblTripsAndVMT            | HaulingTripLength          | 20.00         | 0.20       |

## 2.0 Emissions Summary

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## 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   |                 |                 |        |        |                 |
| 2015  | 13.8145 | 150.9499 | 118.2407 | 0.1225 | 18.2675       | 6.6964       | 21.3575    | 9.9840         | 6.1605        | 12.8269     | 0.0000   | 12,733.34<br>87 | 12,733.34<br>87 | 3.5658 | 0.0000 | 12,808.23<br>12 |
| 2016  | 8.7434  | 33.3560  | 28.7913  | 0.0481 | 1.1944        | 2.2055       | 3.3999     | 0.3196         | 2.0832        | 2.4028      | 0.0000   | 4,570.291<br>8  | 4,570.291<br>8  | 0.7562 | 0.0000 | 4,586.171<br>1  |
| 2017  | 8.3476  | 30.8414  | 27.6781  | 0.0481 | 1.1945        | 1.9922       | 3.1867     | 0.3196         | 1.8809        | 2.2005      | 0.0000   | 4,489.895<br>0  | 4,489.895<br>0  | 0.7358 | 0.0000 | 4,505.347<br>0  |
| 2018  | 7.8345  | 27.3275  | 26.4594  | 0.0481 | 1.1945        | 1.6806       | 2.8750     | 0.3196         | 1.5882        | 1.9078      | 0.0000   | 4,411.740<br>1  | 4,411.740<br>1  | 0.7419 | 0.0000 | 4,427.320<br>6  |
| Total | 38.7400 | 242.4748 | 201.1696 | 0.2668 | 21.8509       | 12.5746      | 30.8192    | 10.9429        | 11.7129       | 19.3381     | 0.0000   | 26,205.27<br>56 | 26,205.27<br>56 | 5.7997 | 0.0000 | 26,327.06<br>98 |

## 2.1 Overall Construction (Maximum Daily Emission)

### 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   |                 |                 |        |        |                 |
| 2015  | 9.1019  | 62.6037  | 94.2938  | 0.1225 | 7.2470        | 2.5950       | 8.7983     | 3.9263         | 2.5494        | 5.3915      | 0.0000   | 12,733.34<br>87 | 12,733.34<br>87 | 3.5658 | 0.0000 | 12,808.23<br>12 |
| 2016  | 8.7434  | 33.3560  | 28.7913  | 0.0481 | 1.1944        | 2.2055       | 3.3999     | 0.3196         | 2.0832        | 2.4028      | 0.0000   | 4,570.291<br>8  | 4,570.291<br>8  | 0.7562 | 0.0000 | 4,586.171<br>1  |
| 2017  | 8.3476  | 30.8414  | 27.6781  | 0.0481 | 1.1945        | 1.9922       | 3.1867     | 0.3196         | 1.8809        | 2.2005      | 0.0000   | 4,489.895<br>0  | 4,489.895<br>0  | 0.7358 | 0.0000 | 4,505.347<br>0  |
| 2018  | 7.8345  | 27.3275  | 26.4594  | 0.0481 | 1.1945        | 1.6806       | 2.8750     | 0.3196         | 1.5882        | 1.9078      | 0.0000   | 4,411.740<br>1  | 4,411.740<br>1  | 0.7419 | 0.0000 | 4,427.320<br>6  |
| Total | 34.0274 | 154.1286 | 177.2227 | 0.2668 | 10.8305       | 8.4732       | 18.2599    | 4.8851         | 8.1018        | 11.9027     | 0.0000   | 26,205.27<br>56 | 26,205.27<br>56 | 5.7997 | 0.0000 | 26,327.06<br>98 |

|                   | ROG   | NOx   | CO    | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|-------|-------|-------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 12.16 | 36.44 | 11.90 | 0.00 | 50.43         | 32.62        | 40.75      | 55.36          | 30.83         | 38.45       | 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     | 66.2926 | 1.6596  | 127.6884 | 0.1753 |               | 16.7515      | 16.7515    |                | 16.7489       | 16.7489     | 2,041.988<br>2 | 3,956.384<br>4  | 5,998.372<br>6  | 6.1217 | 0.1386 | 6,169.892<br>9  |  |
| Energy   | 0.1860  | 1.5898  | 0.6765   | 0.0102 |               | 0.1285       | 0.1285     |                | 0.1285        | 0.1285      |                | 2,029.525<br>5  | 2,029.525<br>5  | 0.0389 | 0.0372 | 2,041.876<br>9  |  |
| Mobile   | 7.2449  | 21.1929 | 85.3457  | 0.2386 | 15.9270       | 0.3274       | 16.2545    | 4.2557         | 0.3017        | 4.5574      |                | 19,683.82<br>03 | 19,683.82<br>03 | 0.7121 |        | 19,698.77<br>51 |  |
| Total    | 73.7235 | 24.4423 | 213.7106 | 0.4240 | 15.9270       | 17.2075      | 33.1345    | 4.2557         | 17.1791       | 21.4348     | 2,041.988<br>2 | 25,669.73<br>02 | 27,711.71<br>84 | 6.8727 | 0.1758 | 27,910.54<br>49 |  |

### 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     | 9.5496  | 0.2102  | 18.1332  | 9.5000e-004 |               | 0.3620       | 0.3620     |                | 0.3592        | 0.3592      | 0.0000   | 4,187.207<br>9  | 4,187.207<br>9  | 0.1117 | 0.0762 | 4,213.167<br>5  |  |
| Energy   | 0.1860  | 1.5898  | 0.6765   | 0.0102      |               | 0.1285       | 0.1285     |                | 0.1285        | 0.1285      |          | 2,029.525<br>5  | 2,029.525<br>5  | 0.0389 | 0.0372 | 2,041.876<br>9  |  |
| Mobile   | 7.2449  | 21.1929 | 85.3457  | 0.2386      | 15.9270       | 0.3274       | 16.2545    | 4.2557         | 0.3017        | 4.5574      |          | 19,683.82<br>03 | 19,683.82<br>03 | 0.7121 |        | 19,698.77<br>51 |  |
| Total    | 16.9805 | 22.9929 | 104.1554 | 0.2497      | 15.9270       | 0.8180       | 16.7450    | 4.2557         | 0.7894        | 5.0451      | 0.0000   | 25,900.55<br>38 | 25,900.55<br>38 | 0.8628 | 0.1134 | 25,953.81<br>95 |  |

|                   | ROG   | NOx  | CO    | SO2   | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4   | N2O   | CO2e |
|-------------------|-------|------|-------|-------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|-------|-------|------|
| Percent Reduction | 76.97 | 5.93 | 51.26 | 41.12 | 0.00          | 95.25        | 49.46      | 0.00           | 95.40         | 76.46       | 100.00   | -0.90    | 6.54      | 87.45 | 35.51 | 7.01 |

### 3.0 Construction Detail

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#### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date   | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|------------|---------------|----------|-------------------|
| 1            | Site Preparation      | Site Preparation      | 1/1/2015   | 2/11/2015  | 5             | 30       |                   |
| 2            | Grading               | Grading               | 2/12/2015  | 10/14/2015 | 5             | 175      |                   |
| 3            | Building Construction | Building Construction | 11/1/2015  | 7/6/2018   | 5             | 700      |                   |
| 4            | Architectural Coating | Architectural Coating | 11/1/2015  | 7/8/2018   | 5             | 700      |                   |
| 5            | Paving                | Paving                | 7/7/2018   | 7/27/2018  | 5             | 15       |                   |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 0

Residential Indoor: 794,610; Residential Outdoor: 264,870; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

#### OffRoad Equipment

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Site Preparation      | Rubber Tired Dozers       | 3      | 8.00        | 255         | 0.40        |
| Site Preparation      | Tractors/Loaders/Backhoes | 4      | 8.00        | 97          | 0.37        |
| Grading               | Excavators                | 2      | 8.00        | 162         | 0.38        |
| Grading               | Graders                   | 2      | 8.00        | 174         | 0.41        |
| Grading               | Rubber Tired Dozers       | 1      | 8.00        | 255         | 0.40        |
| Grading               | Scrapers                  | 5      | 8.00        | 361         | 0.48        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Building Construction | Cranes                    | 1      | 7.00        | 226         | 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        | 125         | 0.42        |
| Paving                | Paving Equipment          | 2      | 8.00        | 130         | 0.36        |
| Paving                | Rollers                   | 2      | 8.00        | 80          | 0.38        |
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |

### Trips and VMT

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Site Preparation      | 7                       | 18.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 12                      | 30.00              | 0.00               | 35,838.00           | 14.70              | 6.90               | 0.20                | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 9                       | 78.00              | 23.00              | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 6                       | 15.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 16.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

### 3.2 Site Preparation - 2015

#### 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      | 5.2609 | 56.8897 | 42.6318 | 0.0391 |               | 3.0883       | 3.0883     |                | 2.8412        | 2.8412      | 4,111.744<br>4 | 4,111.744<br>4 | 1.2275         |        |     | 4,137.522<br>5 |                |
| Total         | 5.2609 | 56.8897 | 42.6318 | 0.0391 | 18.0663       | 3.0883       | 21.1545    | 9.9307         | 2.8412        | 12.7719     |                | 4,111.744<br>4 | 4,111.744<br>4 | 1.2275 |     |                | 4,137.522<br>5 |

### 3.2 Site Preparation - 2015

#### 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   | 0.0000 | 0.0000   |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000   | 0.0000 | 0.0000   |  |
| Worker   | 0.0833 | 0.1042 | 1.2923 | 2.5500e-003 | 0.2012        | 1.7700e-003  | 0.2030     | 0.0534         | 1.6200e-003   | 0.0550      | 221.7418 | 221.7418  | 0.0119    | 221.9925 |        |          |  |
| Total    | 0.0833 | 0.1042 | 1.2923 | 2.5500e-003 | 0.2012        | 1.7700e-003  | 0.2030     | 0.0534         | 1.6200e-003   | 0.0550      | 221.7418 | 221.7418  | 0.0119    |          |        | 221.9925 |  |

#### 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 |        |         |         |        | 7.0458        | 0.0000       | 7.0458     | 3.8730         | 0.0000        | 3.8730      |          |            | 0.0000     |        |     | 0.0000     |  |
| Off-Road      | 2.0891 | 26.2494 | 23.7344 | 0.0391 |               | 1.5495       | 1.5495     |                | 1.4635        | 1.4635      | 0.0000   | 4,111.7444 | 4,111.7444 | 1.2275 |     | 4,137.5224 |  |
| Total         | 2.0891 | 26.2494 | 23.7344 | 0.0391 | 7.0458        | 1.5495       | 8.5953     | 3.8730         | 1.4635        | 5.3365      | 0.0000   | 4,111.7444 | 4,111.7444 | 1.2275 |     | 4,137.5224 |  |

### 3.2 Site Preparation - 2015

#### 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   | 0.0000 | 0.0000   |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000   | 0.0000 | 0.0000   |  |
| Worker   | 0.0833 | 0.1042 | 1.2923 | 2.5500e-003 | 0.2012        | 1.7700e-003  | 0.2030     | 0.0534         | 1.6200e-003   | 0.0550      | 221.7418 | 221.7418  | 0.0119    | 221.9925 |        |          |  |
| Total    | 0.0833 | 0.1042 | 1.2923 | 2.5500e-003 | 0.2012        | 1.7700e-003  | 0.2030     | 0.0534         | 1.6200e-003   | 0.0550      |          | 221.7418  | 221.7418  | 0.0119   |        | 221.9925 |  |

### 3.3 Grading - 2015

#### 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 |         |          |         |        | 7.8739        | 0.0000       | 7.8739     | 3.5182         | 0.0000        | 3.5182      |                 |                 | 0.0000          |        |     | 0.0000          |
| Off-Road      | 12.1664 | 145.7113 | 90.5505 | 0.1127 |               | 6.6668       | 6.6668     |                | 6.1334        | 6.1334      | 11,837.04<br>99 | 11,837.04<br>99 | 3.5339          |        |     | 11,911.26<br>09 |
| Total         | 12.1664 | 145.7113 | 90.5505 | 0.1127 | 7.8739        | 6.6668       | 14.5406    | 3.5182         | 6.1334        | 9.6517      |                 | 11,837.04<br>99 | 11,837.04<br>99 | 3.5339 |     | 11,911.26<br>09 |

### 3.3 Grading - 2015

#### 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  | 1.5093 | 5.0650 | 25.5364 | 5.5800e-003 | 0.0399        | 0.0267       | 0.0666     | 0.0113         | 0.0244        | 0.0357      |          | 526.7292  | 526.7292  | 0.0121 |     | 526.9828 |  |
| 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   | 0.1389 | 0.1737 | 2.1538  | 4.2500e-003 | 0.3353        | 2.9500e-003  | 0.3383     | 0.0889         | 2.7000e-003   | 0.0916      |          | 369.5696  | 369.5696  | 0.0199 |     | 369.9875 |  |
| Total    | 1.6481 | 5.2387 | 27.6902 | 9.8300e-003 | 0.3752        | 0.0296       | 0.4049     | 0.1002         | 0.0271        | 0.1273      |          | 896.2988  | 896.2988  | 0.0320 |     | 896.9703 |  |

#### 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 |        |         |         |        | 3.0708        | 0.0000       | 3.0708     | 1.3721         | 0.0000        | 1.3721      |          | 0.0000          | 0.0000          |        |     | 0.0000          |  |
| Off-Road      | 3.3329 | 57.3650 | 66.6036 | 0.1127 |               | 2.5653       | 2.5653     |                | 2.5224        | 2.5224      | 0.0000   | 11,837.04<br>99 | 11,837.04<br>99 | 3.5339 |     | 11,911.26<br>09 |  |
| Total         | 3.3329 | 57.3650 | 66.6036 | 0.1127 | 3.0708        | 2.5653       | 5.6361     | 1.3721         | 2.5224        | 3.8945      | 0.0000   | 11,837.04<br>99 | 11,837.04<br>99 | 3.5339 |     | 11,911.26<br>09 |  |

### 3.3 Grading - 2015

#### 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  | 1.5093 | 5.0650 | 25.5364 | 5.5800e-003 | 0.0399        | 0.0267       | 0.0666     | 0.0113         | 0.0244        | 0.0357      | 526.7292 | 526.7292  | 0.0121    |        |        | 526.9828 |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000  | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000 | 0.0000 | 0.0000   |  |
| Worker   | 0.1389 | 0.1737 | 2.1538  | 4.2500e-003 | 0.3353        | 2.9500e-003  | 0.3383     | 0.0889         | 2.7000e-003   | 0.0916      | 369.5696 | 369.5696  | 0.0199    |        |        | 369.9875 |  |
| Total    | 1.6481 | 5.2387 | 27.6902 | 9.8300e-003 | 0.3752        | 0.0296       | 0.4049     | 0.1002         | 0.0271        | 0.1273      | 896.2988 | 896.2988  | 0.0320    |        |        | 896.9703 |  |

### 3.4 Building Construction - 2015

#### 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 | 3.6591 | 30.0299 | 18.7446 | 0.0268 |               | 2.1167       | 2.1167     |                | 1.9904        | 1.9904      | 2,689.577<br>1 | 2,689.577<br>1 | 0.6748    |     |     | 2,703.748<br>3 |  |
| Total    | 3.6591 | 30.0299 | 18.7446 | 0.0268 |               | 2.1167       | 2.1167     |                | 1.9904        | 1.9904      | 2,689.577<br>1 | 2,689.577<br>1 | 0.6748    |     |     | 2,703.748<br>3 |  |

### 3.4 Building Construction - 2015

#### 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   | 0.0000     | 0.0000 |  |
| Vendor   | 0.2166 | 2.2490 | 2.4890 | 5.0100e-003 | 0.1437        | 0.0393       | 0.1830     | 0.0409         | 0.0362        | 0.0771      | 507.0516   | 507.0516   | 3.9600e-003 | 507.1348 |            |        |  |
| Worker   | 0.3610 | 0.4516 | 5.5999 | 0.0111      | 0.8719        | 7.6700e-003  | 0.8795     | 0.2312         | 7.0300e-003   | 0.2383      | 960.8810   | 960.8810   | 0.0517      |          | 961.9674   |        |  |
| Total    | 0.5777 | 2.7007 | 8.0890 | 0.0161      | 1.0156        | 0.0470       | 1.0626     | 0.2721         | 0.0432        | 0.3153      | 1,467.9326 | 1,467.9326 | 0.0557      |          | 1,469.1023 |        |  |

#### 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 | 3.6591 | 30.0299 | 18.7446 | 0.0268 |               | 2.1167       | 2.1167     |                | 1.9904        | 1.9904      | 0.0000   | 2,689.5771 | 2,689.5771 | 0.6748 |     | 2,703.7483 |  |
| Total    | 3.6591 | 30.0299 | 18.7446 | 0.0268 |               | 2.1167       | 2.1167     |                | 1.9904        | 1.9904      | 0.0000   | 2,689.5771 | 2,689.5771 | 0.6748 |     | 2,703.7483 |  |

### 3.4 Building Construction - 2015

#### 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   | 0.0000     | 0.0000 |  |
| Vendor   | 0.2166 | 2.2490 | 2.4890 | 5.0100e-003 | 0.1437        | 0.0393       | 0.1830     | 0.0409         | 0.0362        | 0.0771      | 507.0516   | 507.0516   | 3.9600e-003 | 507.1348 |            |        |  |
| Worker   | 0.3610 | 0.4516 | 5.5999 | 0.0111      | 0.8719        | 7.6700e-003  | 0.8795     | 0.2312         | 7.0300e-003   | 0.2383      | 960.8810   | 960.8810   | 0.0517      |          | 961.9674   |        |  |
| Total    | 0.5777 | 2.7007 | 8.0890 | 0.0161      | 1.0156        | 0.0470       | 1.0626     | 0.2721         | 0.0432        | 0.3153      | 1,467.9326 | 1,467.9326 | 0.0557      |          | 1,469.1023 |        |  |

### 3.4 Building Construction - 2016

#### 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 | 3.4062 | 28.5063 | 18.5066 | 0.0268 |               | 1.9674       | 1.9674     |                | 1.8485        | 1.8485      | 2,669.2864 | 2,669.2864 | 0.6620    |     | 2,683.1890 |      |  |
| Total    | 3.4062 | 28.5063 | 18.5066 | 0.0268 |               | 1.9674       | 1.9674     |                | 1.8485        | 1.8485      | 2,669.2864 | 2,669.2864 | 0.6620    |     | 2,683.1890 |      |  |

### 3.4 Building Construction - 2016

#### 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   | 0.0000 | 0.0000     |  |
| Vendor   | 0.1915 | 1.9865 | 2.2906 | 5.0000e-003 | 0.1438        | 0.0327       | 0.1765     | 0.0409         | 0.0301        | 0.0710      | 501.4665   | 501.4665   | 3.5800e-003 | 501.5417 |        |            |  |
| Worker   | 0.3259 | 0.4074 | 5.0702 | 0.0111      | 0.8719        | 7.2900e-003  | 0.8791     | 0.2312         | 6.7000e-003   | 0.2379      | 927.7775   | 927.7775   | 0.0476      |          |        | 928.7772   |  |
| Total    | 0.5174 | 2.3938 | 7.3607 | 0.0161      | 1.0156        | 0.0400       | 1.0556     | 0.2722         | 0.0368        | 0.3089      | 1,429.2440 | 1,429.2440 | 0.0512      |          |        | 1,430.3188 |  |

#### 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 | 3.4062 | 28.5063 | 18.5066 | 0.0268 |               | 1.9674       | 1.9674     |                | 1.8485        | 1.8485      | 0.0000   | 2,669.2864 | 2,669.2864 | 0.6620 |     | 2,683.1890 |  |
| Total    | 3.4062 | 28.5063 | 18.5066 | 0.0268 |               | 1.9674       | 1.9674     |                | 1.8485        | 1.8485      | 0.0000   | 2,669.2864 | 2,669.2864 | 0.6620 |     | 2,683.1890 |  |

### 3.4 Building Construction - 2016

#### 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   | 0.0000 | 0.0000     |  |
| Vendor   | 0.1915 | 1.9865 | 2.2906 | 5.0000e-003 | 0.1438        | 0.0327       | 0.1765     | 0.0409         | 0.0301        | 0.0710      | 501.4665   | 501.4665   | 3.5800e-003 | 501.5417 |        |            |  |
| Worker   | 0.3259 | 0.4074 | 5.0702 | 0.0111      | 0.8719        | 7.2900e-003  | 0.8791     | 0.2312         | 6.7000e-003   | 0.2379      | 927.7775   | 927.7775   | 0.0476      |          |        | 928.7772   |  |
| Total    | 0.5174 | 2.3938 | 7.3607 | 0.0161      | 1.0156        | 0.0400       | 1.0556     | 0.2722         | 0.0368        | 0.3089      | 1,429.2440 | 1,429.2440 | 0.0512      |          |        | 1,430.3188 |  |

### 3.4 Building Construction - 2017

#### Unmitigated Construction On-Site

|          | ROG    | NOx     | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2   | NBio- CO2  | Total CO2 | CH4 | N2O | CO2e       |  |
|----------|--------|---------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|------------|------------|-----------|-----|-----|------------|--|
| Category | lb/day |         |         |        |               |              |            |                |               |             |            |            | lb/day    |     |     |            |  |
| Off-Road | 3.1024 | 26.4057 | 18.1291 | 0.0268 |               | 1.7812       | 1.7812     |                | 1.6730        | 1.6730      | 2,639.8053 | 2,639.8053 | 0.6497    |     |     | 2,653.4490 |  |
| Total    | 3.1024 | 26.4057 | 18.1291 | 0.0268 |               | 1.7812       | 1.7812     |                | 1.6730        | 1.6730      | 2,639.8053 | 2,639.8053 | 0.6497    |     |     | 2,653.4490 |  |

### 3.4 Building Construction - 2017

#### 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   | 0.0000 | 0.0000     |  |
| Vendor   | 0.1755 | 1.8075 | 2.1541 | 5.0000e-003 | 0.1438        | 0.0292       | 0.1730     | 0.0410         | 0.0268        | 0.0678      | 493.3441   | 493.3441   | 3.4600e-003 | 493.4168 |        |            |  |
| Worker   | 0.2928 | 0.3678 | 4.5861 | 0.0110      | 0.8719        | 7.0100e-003  | 0.8789     | 0.2312         | 6.4700e-003   | 0.2377      | 892.2681   | 892.2681   | 0.0439      |          |        | 893.1905   |  |
| Total    | 0.4683 | 2.1753 | 6.7402 | 0.0160      | 1.0157        | 0.0362       | 1.0518     | 0.2722         | 0.033         | 0.3055      | 1,385.6123 | 1,385.6123 | 0.0474      |          |        | 1,386.6073 |  |

#### 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 | 3.1024 | 26.4057 | 18.1291 | 0.0268 |               | 1.7812       | 1.7812     |                | 1.6730        | 1.6730      | 0.0000   | 2,639.8053 | 2,639.8053 | 0.6497 |     | 2,653.4490 |  |
| Total    | 3.1024 | 26.4057 | 18.1291 | 0.0268 |               | 1.7812       | 1.7812     |                | 1.6730        | 1.6730      | 0.0000   | 2,639.8053 | 2,639.8053 | 0.6497 |     | 2,653.4490 |  |

### 3.4 Building Construction - 2017

#### 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   | 0.0000     | 0.0000 |  |
| Vendor   | 0.1755 | 1.8075 | 2.1541 | 5.0000e-003 | 0.1438        | 0.0292       | 0.1730     | 0.0410         | 0.0268        | 0.0678      | 493.3441   | 493.3441   | 3.4600e-003 | 493.4168 |            |        |  |
| Worker   | 0.2928 | 0.3678 | 4.5861 | 0.0110      | 0.8719        | 7.0100e-003  | 0.8789     | 0.2312         | 6.4700e-003   | 0.2377      | 892.2681   | 892.2681   | 0.0439      |          | 893.1905   |        |  |
| Total    | 0.4683 | 2.1753 | 6.7402 | 0.0160      | 1.0157        | 0.0362       | 1.0518     | 0.2722         | 0.033         | 0.3055      | 1,385.6123 | 1,385.6123 | 0.0474      |          | 1,386.6073 |        |  |

### 3.4 Building Construction - 2018

#### 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 | 2.6687 | 23.2608 | 17.5327 | 0.0268 |               | 1.4943       | 1.4943     |                | 1.4048        | 1.4048      | 2,609.9390 | 2,609.9390 | 0.6387    |     | 2,623.3517 |      |  |
| Total    | 2.6687 | 23.2608 | 17.5327 | 0.0268 |               | 1.4943       | 1.4943     |                | 1.4048        | 1.4048      | 2,609.9390 | 2,609.9390 | 0.6387    |     | 2,623.3517 |      |  |

### 3.4 Building Construction - 2018

#### 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   | 0.0000 | 0.0000     |  |
| Vendor   | 0.1646 | 1.6589 | 2.0522 | 4.9900e-003 | 0.1438        | 0.0275       | 0.1713     | 0.0410         | 0.0253        | 0.0663      | 485.0656   | 485.0656   | 3.4400e-003 | 485.1378 |        |            |  |
| Worker   | 0.2639 | 0.3336 | 4.1659 | 0.0110      | 0.8719        | 6.8200e-003  | 0.8787     | 0.2312         | 6.3100e-003   | 0.2375      | 859.0680   | 859.0680   | 0.0408      |          |        | 859.9240   |  |
| Total    | 0.4285 | 1.9925 | 6.2181 | 0.0160      | 1.0157        | 0.0343       | 1.0500     | 0.2722         | 0.0316        | 0.3038      | 1,344.1335 | 1,344.1335 | 0.0442      |          |        | 1,345.0618 |  |

#### 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 | 2.6687 | 23.2608 | 17.5327 | 0.0268 |               | 1.4943       | 1.4943     |                | 1.4048        | 1.4048      | 0.0000   | 2,609.9389 | 2,609.9389 | 0.6387 |     | 2,623.3517 |  |
| Total    | 2.6687 | 23.2608 | 17.5327 | 0.0268 |               | 1.4943       | 1.4943     |                | 1.4048        | 1.4048      | 0.0000   | 2,609.9389 | 2,609.9389 | 0.6387 |     | 2,623.3517 |  |

### 3.4 Building Construction - 2018

#### 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   | 0.0000 | 0.0000     |  |
| Vendor   | 0.1646 | 1.6589 | 2.0522 | 4.9900e-003 | 0.1438        | 0.0275       | 0.1713     | 0.0410         | 0.0253        | 0.0663      | 485.0656   | 485.0656   | 3.4400e-003 | 485.1378 |        |            |  |
| Worker   | 0.2639 | 0.3336 | 4.1659 | 0.0110      | 0.8719        | 6.8200e-003  | 0.8787     | 0.2312         | 6.3100e-003   | 0.2375      | 859.0680   | 859.0680   | 0.0408      |          |        | 859.9240   |  |
| Total    | 0.4285 | 1.9925 | 6.2181 | 0.0160      | 1.0157        | 0.0343       | 1.0500     | 0.2722         | 0.0316        | 0.3038      | 1,344.1335 | 1,344.1335 | 0.0442      |          |        | 1,345.0618 |  |

### 3.5 Architectural Coating - 2015

#### 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 | 4.3845 |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000 | 0.0000 | 0.0000   |  |
| Off-Road        | 0.4066 | 2.5703 | 1.9018 | 2.9700e-003 |               | 0.2209       | 0.2209     |                | 0.2209        | 0.2209      | 281.4481 | 281.4481  | 0.0367    |        |        | 282.2177 |  |
| Total           | 4.7911 | 2.5703 | 1.9018 | 2.9700e-003 |               | 0.2209       | 0.2209     |                | 0.2209        | 0.2209      | 281.4481 | 281.4481  | 0.0367    |        |        | 282.2177 |  |

### 3.5 Architectural Coating - 2015

#### 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   | 0.0000 | 0.0000   |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000   | 0.0000 | 0.0000   |  |
| Worker   | 0.0741 | 0.0926 | 1.1487 | 2.2700e-003 | 0.1788        | 1.5700e-003  | 0.1804     | 0.0474         | 1.4400e-003   | 0.0489      | 197.1038 | 197.1038  | 0.0106    | 197.3267 |        |          |  |
| Total    | 0.0741 | 0.0926 | 1.1487 | 2.2700e-003 | 0.1788        | 1.5700e-003  | 0.1804     | 0.0474         | 1.4400e-003   | 0.0489      | 197.1038 | 197.1038  | 0.0106    |          |        | 197.3267 |  |

#### 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 | 4.3845 |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |           | 0.0000    |        |     | 0.0000   |  |
| Off-Road        | 0.4066 | 2.5703 | 1.9018 | 2.9700e-003 |               | 0.2209       | 0.2209     |                | 0.2209        | 0.2209      | 0.0000   | 281.4481  | 281.4481  | 0.0367 |     | 282.2177 |  |
| Total           | 4.7911 | 2.5703 | 1.9018 | 2.9700e-003 |               | 0.2209       | 0.2209     |                | 0.2209        | 0.2209      | 0.0000   | 281.4481  | 281.4481  | 0.0367 |     | 282.2177 |  |

### 3.5 Architectural Coating - 2015

#### 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   | 0.0000 | 0.0000   |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000   | 0.0000 | 0.0000   |  |
| Worker   | 0.0741 | 0.0926 | 1.1487 | 2.2700e-003 | 0.1788        | 1.5700e-003  | 0.1804     | 0.0474         | 1.4400e-003   | 0.0489      | 197.1038 | 197.1038  | 0.0106    | 197.3267 |        |          |  |
| Total    | 0.0741 | 0.0926 | 1.1487 | 2.2700e-003 | 0.1788        | 1.5700e-003  | 0.1804     | 0.0474         | 1.4400e-003   | 0.0489      | 197.1038 | 197.1038  | 0.0106    |          |        | 197.3267 |  |

### 3.5 Architectural Coating - 2016

#### 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 | 4.3845 |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |           | 0.0000    |     |     | 0.0000   |  |
| Off-Road        | 0.3685 | 2.3722 | 1.8839 | 2.9700e-003 |               | 0.1966       | 0.1966     |                | 0.1966        | 0.1966      | 281.4481 | 281.4481  | 0.0332    |     |     | 282.1449 |  |
| Total           | 4.7530 | 2.3722 | 1.8839 | 2.9700e-003 |               | 0.1966       | 0.1966     |                | 0.1966        | 0.1966      | 281.4481 | 281.4481  | 0.0332    |     |     | 282.1449 |  |

### 3.5 Architectural Coating - 2016

#### 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   | 0.0000 | 0.0000 |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000      | 0.0000   | 0.0000 | 0.0000 |  |
| Worker   | 0.0668 | 0.0836 | 1.0400 | 2.2700e-003 | 0.1788        | 1.4900e-003  | 0.1803     | 0.0474         | 1.3700e-003   | 0.0488      | 190.3133 | 190.3133  | 9.7600e-003 | 190.5184 |        |        |  |
| Total    | 0.0668 | 0.0836 | 1.0400 | 2.2700e-003 | 0.1788        | 1.4900e-003  | 0.1803     | 0.0474         | 1.3700e-003   | 0.0488      | 190.3133 | 190.3133  | 9.7600e-003 | 190.5184 |        |        |  |

#### 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 | 4.3845 |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |           | 0.0000    |        |     | 0.0000   |  |
| Off-Road        | 0.3685 | 2.3722 | 1.8839 | 2.9700e-003 |               | 0.1966       | 0.1966     |                | 0.1966        | 0.1966      | 0.0000   | 281.4481  | 281.4481  | 0.0332 |     | 282.1449 |  |
| Total           | 4.7530 | 2.3722 | 1.8839 | 2.9700e-003 |               | 0.1966       | 0.1966     |                | 0.1966        | 0.1966      | 0.0000   | 281.4481  | 281.4481  | 0.0332 |     | 282.1449 |  |

### 3.5 Architectural Coating - 2016

#### 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   | 0.0000 | 0.0000 |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000      | 0.0000   | 0.0000 | 0.0000 |  |
| Worker   | 0.0668 | 0.0836 | 1.0400 | 2.2700e-003 | 0.1788        | 1.4900e-003  | 0.1803     | 0.0474         | 1.3700e-003   | 0.0488      | 190.3133 | 190.3133  | 9.7600e-003 | 190.5184 |        |        |  |
| Total    | 0.0668 | 0.0836 | 1.0400 | 2.2700e-003 | 0.1788        | 1.4900e-003  | 0.1803     | 0.0474         | 1.3700e-003   | 0.0488      | 190.3133 | 190.3133  | 9.7600e-003 | 190.5184 |        |        |  |

### 3.5 Architectural Coating - 2017

#### Unmitigated Construction On-Site

|                 | ROG    | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e     |  |
|-----------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-----|-----|----------|--|
| Category        | lb/day |        |        |             |               |              |            |                |               |             |          | lb/day    |           |     |     |          |  |
| Archit. Coating | 4.3845 |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |           | 0.0000    |     |     | 0.0000   |  |
| Off-Road        | 0.3323 | 2.1850 | 1.8681 | 2.9700e-003 |               | 0.1733       | 0.1733     |                | 0.1733        | 0.1733      | 281.4481 | 281.4481  | 0.0297    |     |     | 282.0721 |  |
| Total           | 4.7169 | 2.1850 | 1.8681 | 2.9700e-003 |               | 0.1733       | 0.1733     |                | 0.1733        | 0.1733      | 281.4481 | 281.4481  | 0.0297    |     |     | 282.0721 |  |

### 3.5 Architectural Coating - 2017

#### 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      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000      | 0.0000      | 0.0000 | 0.0000   |  |
| Worker   | 0.0601 | 0.0754 | 0.9407 | 2.2700e-003 | 0.1788        | 1.4400e-003  | 0.1803     | 0.0474         | 1.3300e-003   | 0.0488      | 183.0294 | 183.0294  | 9.0100e-003 | 183.2186    |        |          |  |
| Total    | 0.0601 | 0.0754 | 0.9407 | 2.2700e-003 | 0.1788        | 1.4400e-003  | 0.1803     | 0.0474         | 1.3300e-003   | 0.0488      |          | 183.0294  | 183.0294    | 9.0100e-003 |        | 183.2186 |  |

#### 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 | 4.3845 |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |           | 0.0000    |        |     | 0.0000   |  |
| Off-Road        | 0.3323 | 2.1850 | 1.8681 | 2.9700e-003 |               | 0.1733       | 0.1733     |                | 0.1733        | 0.1733      | 0.0000   | 281.4481  | 281.4481  | 0.0297 |     | 282.0721 |  |
| Total           | 4.7169 | 2.1850 | 1.8681 | 2.9700e-003 |               | 0.1733       | 0.1733     |                | 0.1733        | 0.1733      | 0.0000   | 281.4481  | 281.4481  | 0.0297 |     | 282.0721 |  |

### 3.5 Architectural Coating - 2017

#### 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      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000      | 0.0000      | 0.0000 | 0.0000   |  |
| Worker   | 0.0601 | 0.0754 | 0.9407 | 2.2700e-003 | 0.1788        | 1.4400e-003  | 0.1803     | 0.0474         | 1.3300e-003   | 0.0488      | 183.0294 | 183.0294  | 9.0100e-003 | 183.2186    |        |          |  |
| Total    | 0.0601 | 0.0754 | 0.9407 | 2.2700e-003 | 0.1788        | 1.4400e-003  | 0.1803     | 0.0474         | 1.3300e-003   | 0.0488      |          | 183.0294  | 183.0294    | 9.0100e-003 |        | 183.2186 |  |

### 3.5 Architectural Coating - 2018

#### 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 | 4.3845 |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |           | 0.0000    |        |     | 0.0000   |  |
| Off-Road        | 0.2986 | 2.0058 | 1.8542 | 2.9700e-003 |               | 0.1506       | 0.1506     |                | 0.1506        | 0.1506      | 281.4485 | 281.4485  | 0.0267    |        |     | 282.0102 |  |
| Total           | 4.6832 | 2.0058 | 1.8542 | 2.9700e-003 |               | 0.1506       | 0.1506     |                | 0.1506        | 0.1506      |          | 281.4485  | 281.4485  | 0.0267 |     | 282.0102 |  |

### 3.5 Architectural Coating - 2018

#### 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      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000      | 0.0000      | 0.0000 | 0.0000   |  |
| Worker   | 0.0541 | 0.0684 | 0.8545 | 2.2600e-003 | 0.1788        | 1.4000e-003  | 0.1802     | 0.0474         | 1.3000e-003   | 0.0487      | 176.2191 | 176.2191  | 8.3600e-003 |             |        | 176.3947 |  |
| Total    | 0.0541 | 0.0684 | 0.8545 | 2.2600e-003 | 0.1788        | 1.4000e-003  | 0.1802     | 0.0474         | 1.3000e-003   | 0.0487      |          | 176.2191  | 176.2191    | 8.3600e-003 |        | 176.3947 |  |

#### 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 | 4.3845 |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |           | 0.0000    |        |     | 0.0000   |  |
| Off-Road        | 0.2986 | 2.0058 | 1.8542 | 2.9700e-003 |               | 0.1506       | 0.1506     |                | 0.1506        | 0.1506      | 0.0000   | 281.4485  | 281.4485  | 0.0267 |     | 282.0102 |  |
| Total           | 4.6832 | 2.0058 | 1.8542 | 2.9700e-003 |               | 0.1506       | 0.1506     |                | 0.1506        | 0.1506      | 0.0000   | 281.4485  | 281.4485  | 0.0267 |     | 282.0102 |  |

### 3.5 Architectural Coating - 2018

#### 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      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000      | 0.0000      | 0.0000 | 0.0000   |  |
| Worker   | 0.0541 | 0.0684 | 0.8545 | 2.2600e-003 | 0.1788        | 1.4000e-003  | 0.1802     | 0.0474         | 1.3000e-003   | 0.0487      | 176.2191 | 176.2191  | 8.3600e-003 |             |        | 176.3947 |  |
| Total    | 0.0541 | 0.0684 | 0.8545 | 2.2600e-003 | 0.1788        | 1.4000e-003  | 0.1802     | 0.0474         | 1.3000e-003   | 0.0487      |          | 176.2191  | 176.2191    | 8.3600e-003 |        | 176.3947 |  |

### 3.6 Paving - 2018

#### 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 | 1.6114 | 17.1628 | 14.4944 | 0.0223 |               | 0.9386       | 0.9386     |                | 0.8635        | 0.8635      |          | 2,245.2695 | 2,245.2695 | 0.6990 |     |        | 2,259.9481 |
| Paving   | 0.0000 |         |         |        |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      |          | 0.0000     |            |        |     | 0.0000 |            |
| Total    | 1.6114 | 17.1628 | 14.4944 | 0.0223 |               | 0.9386       | 0.9386     |                | 0.8635        | 0.8635      |          | 2,245.2695 | 2,245.2695 | 0.6990 |     |        | 2,259.9481 |

### 3.6 Paving - 2018

#### 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      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000      | 0.0000      | 0.0000 | 0.0000   |  |
| Worker   | 0.0508 | 0.0642 | 0.8011 | 2.1200e-003 | 0.1677        | 1.3100e-003  | 0.1690     | 0.0445         | 1.2100e-003   | 0.0457      | 165.2054 | 165.2054  | 7.8400e-003 |             |        | 165.3700 |  |
| Total    | 0.0508 | 0.0642 | 0.8011 | 2.1200e-003 | 0.1677        | 1.3100e-003  | 0.1690     | 0.0445         | 1.2100e-003   | 0.0457      |          | 165.2054  | 165.2054    | 7.8400e-003 |        | 165.3700 |  |

#### 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 | 1.6114 | 17.1628 | 14.4944 | 0.0223 |               | 0.9386       | 0.9386     |                | 0.8635        | 0.8635      | 0.0000   | 2,245.2695 | 2,245.2695 | 0.6990 |     | 2,259.9481 |  |
| Paving   | 0.0000 |         |         |        |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      |          |            | 0.0000     |        |     | 0.0000     |  |
| Total    | 1.6114 | 17.1628 | 14.4944 | 0.0223 |               | 0.9386       | 0.9386     |                | 0.8635        | 0.8635      | 0.0000   | 2,245.2695 | 2,245.2695 | 0.6990 |     | 2,259.9481 |  |

### 3.6 Paving - 2018

#### 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      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000      | 0.0000      | 0.0000 | 0.0000   |  |
| Worker   | 0.0508 | 0.0642 | 0.8011 | 2.1200e-003 | 0.1677        | 1.3100e-003  | 0.1690     | 0.0445         | 1.2100e-003   | 0.0457      | 165.2054 | 165.2054  | 7.8400e-003 |             |        | 165.3700 |  |
| Total    | 0.0508 | 0.0642 | 0.8011 | 2.1200e-003 | 0.1677        | 1.3100e-003  | 0.1690     | 0.0445         | 1.2100e-003   | 0.0457      |          | 165.2054  | 165.2054    | 7.8400e-003 |        | 165.3700 |  |

### 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   | 7.2449 | 21.1929 | 85.3457 | 0.2386 | 15.9270       | 0.3274       | 16.2545    | 4.2557         | 0.3017        | 4.5574      | 19,683.82<br>03 | 19,683.82<br>03 | 0.7121    |     |     | 19,698.77<br>51 |
| Unmitigated | 7.2449 | 21.1929 | 85.3457 | 0.2386 | 15.9270       | 0.3274       | 16.2545    | 4.2557         | 0.3017        | 4.5574      | 19,683.82<br>03 | 19,683.82<br>03 | 0.7121    |     |     | 19,698.77<br>51 |

## 4.2 Trip Summary Information

| Land Use              | Average Daily Trip Rate |          |          | Unmitigated |            | Mitigated  |            |
|-----------------------|-------------------------|----------|----------|-------------|------------|------------|------------|
|                       | Weekday                 | Saturday | Sunday   | Annual VMT  | Annual VMT | Annual VMT | Annual VMT |
| Single Family Housing | 2,086.26                | 2,197.44 | 1911.86  | 7,098,206   | 7,098,206  | 7,098,206  | 7,098,206  |
| Total                 | 2,086.26                | 2,197.44 | 1,911.86 | 7,098,206   | 7,098,206  | 7,098,206  | 7,098,206  |

## 4.3 Trip Type Information

| Land Use              | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                       | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Single Family Housing | 14.70      | 5.90       | 8.70        | 40.20      | 19.20      | 40.60       | 86             | 11       | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.511172 | 0.060004 | 0.180590 | 0.138995 | 0.042398 | 0.006681 | 0.016070 | 0.032568 | 0.001938 | 0.002493 | 0.004370 | 0.000586 | 0.002135 |

## 5.0 Energy Detail

### 5.1 Fleet Mix

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   | 0.1860 | 1.5898 | 0.6765 | 0.0102 |               | 0.1285       | 0.1285     |                | 0.1285        | 0.1285      | 2,029.525 | 2,029.525 | 0.0389    | 0.0372 | 2,041.876 | 9    |
| NaturalGas Unmitigated | 0.1860 | 1.5898 | 0.6765 | 0.0102 |               | 0.1285       | 0.1285     |                | 0.1285        | 0.1285      | 2,029.525 | 2,029.525 | 0.0389    | 0.0372 | 2,041.876 | 9    |

## 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 | 17251          | 0.1860 | 1.5898 | 0.6765 | 0.0102 |               | 0.1285       | 0.1285     |                | 0.1285        | 0.1285      |          | 2,029.525 | 2,029.525 | 0.0389 | 0.0372 | 2,041.876 |  |
| Total                 |                | 0.1860 | 1.5898 | 0.6765 | 0.0102 |               | 0.1285       | 0.1285     |                | 0.1285        | 0.1285      |          | 2,029.525 | 2,029.525 | 0.0389 | 0.0372 | 2,041.876 |  |

### 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 | 17.251         | 0.1860 | 1.5898 | 0.6765 | 0.0102 |               | 0.1285       | 0.1285     |                | 0.1285        | 0.1285      |          | 2,029.525 | 2,029.525 | 0.0389 | 0.0372 | 2,041.876 |  |
| Total                 |                | 0.1860 | 1.5898 | 0.6765 | 0.0102 |               | 0.1285       | 0.1285     |                | 0.1285        | 0.1285      |          | 2,029.525 | 2,029.525 | 0.0389 | 0.0372 | 2,041.876 |  |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

Use only Natural Gas Hearths

|             | ROG     | NOx    | CO       | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2   | NBio- CO2  | Total CO2  | CH4    | N2O    | CO2e       |  |
|-------------|---------|--------|----------|-------------|---------------|--------------|------------|----------------|---------------|-------------|------------|------------|------------|--------|--------|------------|--|
| Category    | lb/day  |        |          |             |               |              |            |                |               |             | lb/day     |            |            |        |        |            |  |
| Mitigated   | 9.5496  | 0.2102 | 18.1332  | 9.5000e-004 |               | 0.3620       | 0.3620     |                | 0.3592        | 0.3592      | 0.0000     | 4,187.2079 | 4,187.2079 | 0.1117 | 0.0762 | 4,213.1675 |  |
| Unmitigated | 66.2926 | 1.6596 | 127.6884 | 0.1753      |               | 16.7515      | 16.7515    |                | 16.7489       | 16.7489     | 2,041.9882 | 3,956.3844 | 5,998.3726 | 6.1217 | 0.1386 | 6,169.8929 |  |

## 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 | 0.8409         |               |                 |               |               | 0.0000         | 0.0000         |                | 0.0000         | 0.0000         |                   |                   | 0.0000            |               |               | 0.0000            |  |
| Consumer Products     | 7.7695         |               |                 |               |               | 0.0000         | 0.0000         |                | 0.0000         | 0.0000         |                   |                   | 0.0000            |               |               | 0.0000            |  |
| Hearth                | 57.1239        | 1.4494        | 109.5759        | 0.1743        |               | 16.6527        | 16.6527        |                | 16.6500        | 16.6500        | 2,041.9882        | 3,924.0000        | 5,965.9882        | 6.0896        | 0.1386        | 6,136.8345        |  |
| Landscaping           | 0.5583         | 0.2102        | 18.1125         | 9.5000e-004   |               | 0.0989         | 0.0989         |                | 0.0989         | 0.0989         |                   | 32.3844           | 32.3844           | 0.0321        |               | 33.0584           |  |
| <b>Total</b>          | <b>66.2926</b> | <b>1.6596</b> | <b>127.6884</b> | <b>0.1753</b> |               | <b>16.7515</b> | <b>16.7515</b> |                | <b>16.7489</b> | <b>16.7489</b> | <b>2,041.9882</b> | <b>3,956.3844</b> | <b>5,998.3726</b> | <b>6.1217</b> | <b>0.1386</b> | <b>6,169.8929</b> |  |

## 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   |                |                |        |        |                |
| Consumer Products     | 7.7695 |             |         |             |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      |          |                | 0.0000         |        |        | 0.0000         |
| Hearth                | 0.3809 | 2.0000e-005 | 0.0208  | 0.0000      |               | 0.2631       | 0.2631     |                | 0.2604        | 0.2604      | 0.0000   | 4,154.823<br>5 | 4,154.823<br>5 | 0.0796 | 0.0762 | 4,180.109<br>1 |
| Landscaping           | 0.5583 | 0.2102      | 18.1125 | 9.5000e-004 |               | 0.0989       | 0.0989     |                | 0.0989        | 0.0989      |          | 32.3844        | 32.3844        | 0.0321 |        | 33.0584        |
| Architectural Coating | 0.8409 |             |         |             |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      |          |                | 0.0000         |        |        | 0.0000         |
| Total                 | 9.5496 | 0.2103      | 18.1332 | 9.5000e-004 |               | 0.3620       | 0.3620     |                | 0.3592        | 0.3592      | 0.0000   | 4,187.207<br>9 | 4,187.207<br>9 | 0.1117 | 0.0762 | 4,213.167<br>5 |

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

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

## 10.0 Vegetation

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**Option 1 Phase 2**  
**Orange County, Summer**

## 1.0 Project Characteristics

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### 1.1 Land Usage

| Land Uses             | Size   | Metric        | Lot Acreage | Floor Surface Area | Population |
|-----------------------|--------|---------------|-------------|--------------------|------------|
| Single Family Housing | 160.00 | Dwelling Unit | 51.95       | 288,000.00         | 458        |

### 1.2 Other Project Characteristics

|                            |                            |                            |       |                            |       |
|----------------------------|----------------------------|----------------------------|-------|----------------------------|-------|
| Urbanization               | Urban                      | Wind Speed (m/s)           | 2.2   | Precipitation Freq (Days)  | 30    |
| Climate Zone               | 8                          |                            |       | Operational Year           | 2020  |
| Utility Company            | Southern California Edison |                            |       |                            |       |
| CO2 Intensity<br>(lb/MWhr) | 630.89                     | CH4 Intensity<br>(lb/MWhr) | 0.029 | N2O Intensity<br>(lb/MWhr) | 0.006 |

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

Project Characteristics -

Land Use -

Construction Phase - Construction: 2 years, Paving 3 weeks

Off-road Equipment - Construction: 1 crane, 3 forklifts, 1 gen set, 3 loader/backhoes, 1 loader

Off-road Equipment - Paving: 2 pavers, 2 paving equipment, 2 rollers

Construction Off-road Equipment Mitigation -

Area Mitigation -

| Table Name                | Column Name     | Default Value | New Value  |
|---------------------------|-----------------|---------------|------------|
| tblConstructionPhase      | NumDays         | 75.00         | 500.00     |
| tblConstructionPhase      | NumDays         | 1,110.00      | 500.00     |
| tblConstructionPhase      | NumDays         | 75.00         | 15.00      |
| tblConstructionPhase      | PhaseEndDate    | 10/29/2021    | 11/29/2019 |
| tblConstructionPhase      | PhaseEndDate    | 12/20/2019    | 1/21/2020  |
| tblConstructionPhase      | PhaseStartDate  | 11/30/2019    | 1/1/2018   |
| tblConstructionPhase      | PhaseStartDate  | 11/30/2019    | 1/1/2020   |
| tblProjectCharacteristics | OperationalYear | 2014          | 2020       |

## 2.0 Emissions Summary

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## 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   |                 |                 |        |        |                 |
| 2018  | 7.8028  | 26.7547 | 24.1488 | 0.0429 | 0.8887        | 1.6697       | 2.5584     | 0.2378         | 1.5783        | 1.8160      | 0.0000   | 3,982.796<br>1  | 3,982.796<br>1  | 0.7003 | 0.0000 | 3,997.502<br>7  |
| 2019  | 7.4326  | 24.1804 | 23.4281 | 0.0430 | 0.8887        | 1.4374       | 2.3261     | 0.2378         | 1.3588        | 1.5966      | 0.0000   | 3,925.787<br>8  | 3,925.787<br>8  | 0.6851 | 0.0000 | 3,940.174<br>9  |
| 2020  | 1.3683  | 13.8327 | 14.9554 | 0.0244 | 0.1677        | 0.7402       | 0.9079     | 0.0445         | 0.6810        | 0.7254      | 0.0000   | 2,307.229<br>2  | 2,307.229<br>2  | 0.7051 | 0.0000 | 2,322.037<br>0  |
| Total | 16.6037 | 64.7678 | 62.5322 | 0.1103 | 1.9451        | 3.8473       | 5.7924     | 0.5200         | 3.6180        | 4.1380      | 0.0000   | 10,215.81<br>31 | 10,215.81<br>31 | 2.0906 | 0.0000 | 10,259.71<br>46 |

### 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   |                 |                 |        |        |                 |
| 2018  | 7.8028  | 26.7547 | 24.1488 | 0.0429 | 0.8887        | 1.6697       | 2.5584     | 0.2378         | 1.5783        | 1.8160      | 0.0000   | 3,982.796<br>1  | 3,982.796<br>1  | 0.7003 | 0.0000 | 3,997.502<br>7  |
| 2019  | 7.4326  | 24.1804 | 23.4281 | 0.0430 | 0.8887        | 1.4374       | 2.3261     | 0.2378         | 1.3588        | 1.5966      | 0.0000   | 3,925.787<br>8  | 3,925.787<br>8  | 0.6851 | 0.0000 | 3,940.174<br>9  |
| 2020  | 1.3683  | 13.8327 | 14.9554 | 0.0244 | 0.1677        | 0.7402       | 0.9079     | 0.0445         | 0.6810        | 0.7254      | 0.0000   | 2,307.229<br>2  | 2,307.229<br>2  | 0.7051 | 0.0000 | 2,322.037<br>0  |
| Total | 16.6037 | 64.7678 | 62.5322 | 0.1103 | 1.9451        | 3.8473       | 5.7924     | 0.5200         | 3.6180        | 4.1380      | 0.0000   | 10,215.81<br>31 | 10,215.81<br>31 | 2.0906 | 0.0000 | 10,259.71<br>46 |



## 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     | 48.6486 | 1.2169  | 93.6668  | 0.1287      |               | 12.2950      | 12.2950    |                | 12.2930       | 12.2930     | 1,498.706<br>9  | 2,903.768<br>4  | 4,402.475<br>3  | 4.4926 | 0.1017         | 4,528.353<br>8  |  |
| Energy   | 0.1365  | 1.1668  | 0.4965   | 7.4500e-003 |               | 0.0943       | 0.0943     |                | 0.0943        | 0.0943      | 1,489.560<br>0  | 1,489.560<br>0  | 0.0286          | 0.0273 | 1,498.625<br>3 |                 |  |
| Mobile   | 4.2266  | 9.7433  | 48.3632  | 0.1633      | 11.6468       | 0.1619       | 11.8087    | 3.1078         | 0.1495        | 3.2573      | 12,437.09<br>18 | 12,437.09<br>18 | 0.4381          |        |                | 12,446.29<br>17 |  |
| Total    | 53.0117 | 12.1270 | 142.5265 | 0.2994      | 11.6468       | 12.5512      | 24.1980    | 3.1078         | 12.5368       | 15.6447     | 1,498.706<br>9  | 16,830.42<br>02 | 18,329.12<br>72 | 4.9593 | 0.1290         | 18,473.27<br>07 |  |

### 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     | 7.0024  | 0.1532  | 13.2593 | 7.0000e-004 |               | 0.2660       | 0.2660     |                | 0.2639        | 0.2639      | 0.0000<br>1     | 3,073.180<br>1  | 3,073.180<br>1  | 0.0816 | 0.0559         | 3,092.225<br>1  |  |
| Energy   | 0.1365  | 1.1668  | 0.4965  | 7.4500e-003 |               | 0.0943       | 0.0943     |                | 0.0943        | 0.0943      | 1,489.560<br>0  | 1,489.560<br>0  | 0.0286          | 0.0273 | 1,498.625<br>3 |                 |  |
| Mobile   | 4.2266  | 9.7433  | 48.3632 | 0.1633      | 11.6468       | 0.1619       | 11.8087    | 3.1078         | 0.1495        | 3.2573      | 12,437.09<br>18 | 12,437.09<br>18 | 0.4381          |        |                | 12,446.29<br>17 |  |
| Total    | 11.3655 | 11.0633 | 62.1190 | 0.1715      | 11.6468       | 0.5222       | 12.1690    | 3.1078         | 0.5077        | 3.6156      | 0.0000<br>20    | 16,999.83<br>20 | 16,999.83<br>20 | 0.5483 | 0.0832         | 17,037.14<br>20 |  |

|                   | ROG   | NOx  | CO    | SO2   | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4   | N2O   | CO2e |
|-------------------|-------|------|-------|-------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|-------|-------|------|
| Percent Reduction | 78.56 | 8.77 | 56.42 | 42.73 | 0.00          | 95.84        | 49.71      | 0.00           | 95.95         | 76.89       | 100.00   | -1.01    | 7.25      | 88.94 | 35.50 | 7.77 |

### 3.0 Construction Detail

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#### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date   | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|------------|---------------|----------|-------------------|
| 1            | Building Construction | Building Construction | 1/1/2018   | 11/29/2019 | 5             | 500      |                   |
| 2            | Architectural Coating | Architectural Coating | 1/1/2018   | 11/29/2019 | 5             | 500      |                   |
| 3            | Paving                | Paving                | 1/1/2020   | 1/21/2020  | 5             | 15       |                   |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 583,200; Residential Outdoor: 194,400; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

#### OffRoad Equipment

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Building Construction | Cranes                    | 1      | 7.00        | 226         | 0.29        |
| Building Construction | Forklifts                 | 3      | 8.00        | 89          | 0.20        |
| Building Construction | Generator Sets            | 1      | 8.00        | 84          | 0.74        |
| Building Construction | Tractors/Loaders/Backhoes | 3      | 7.00        | 97          | 0.37        |
| Building Construction | Welders                   | 1      | 8.00        | 46          | 0.45        |
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |
| Paving                | Pavers                    | 2      | 8.00        | 125         | 0.42        |
| Paving                | Paving Equipment          | 2      | 8.00        | 130         | 0.36        |
| Paving                | Rollers                   | 2      | 8.00        | 80          | 0.38        |

### Trips and VMT

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Building Construction | 9                       | 58.00              | 17.00              | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 12.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 6                       | 15.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### **3.1 Mitigation Measures Construction**

Water Exposed Area

### 3.2 Building Construction - 2018

#### 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 | 2.6687 | 23.2608 | 17.5327 | 0.0268 |               |              | 1.4943     | 1.4943         |               | 1.4048      | 1.4048   | 2,609.939 | 2,609.939 | 0.6387 |     | 2,623.351 |  |
| Total    | 2.6687 | 23.2608 | 17.5327 | 0.0268 |               |              | 1.4943     | 1.4943         |               | 1.4048      | 1.4048   | 2,609.939 | 2,609.939 | 0.6387 |     | 2,623.351 |  |

#### 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 | 0.0000   | 0.0000 |  |
| Vendor   | 0.1284 | 1.2281 | 1.5518 | 3.6700e-003 | 0.1063        | 0.0196       | 0.1259     | 0.0303         | 0.0180        | 0.0483      | 356.5026 | 356.5026  | 2.5200e-003 |        | 356.5555 |        |  |
| Worker   | 0.1672 | 0.2154 | 2.6598 | 7.8700e-003 | 0.6483        | 4.3800e-003  | 0.6527     | 0.1719         | 4.0500e-003   | 0.1760      | 608.9222 | 608.9222  | 0.0268      |        | 609.4850 |        |  |
| Total    | 0.2956 | 1.4435 | 4.2116 | 0.0115      | 0.7546        | 0.0240       | 0.7785     | 0.2022         | 0.0221        | 0.2243      | 965.4248 | 965.4248  | 0.0293      |        | 966.0405 |        |  |

### 3.2 Building Construction - 2018

#### 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 | 2.6687 | 23.2608 | 17.5327 | 0.0268 |               | 1.4943       | 1.4943     |                | 1.4048        | 1.4048      | 0.0000   | 2,609.938 | 2,609.938 | 0.6387 |     | 2,623.351 |  |
| Total    | 2.6687 | 23.2608 | 17.5327 | 0.0268 |               | 1.4943       | 1.4943     |                | 1.4048        | 1.4048      | 0.0000   | 2,609.938 | 2,609.938 | 0.6387 |     | 2,623.351 |  |

#### 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 | 0.0000 | 0.0000   |  |
| Vendor   | 0.1284 | 1.2281 | 1.5518 | 3.6700e-003 | 0.1063        | 0.0196       | 0.1259     | 0.0303         | 0.0180        | 0.0483      | 356.5026 | 356.5026  | 2.5200e-003 |        |        | 356.5555 |  |
| Worker   | 0.1672 | 0.2154 | 2.6598 | 7.8700e-003 | 0.6483        | 4.3800e-003  | 0.6527     | 0.1719         | 4.0500e-003   | 0.1760      | 608.9222 | 608.9222  | 0.0268      |        |        | 609.4850 |  |
| Total    | 0.2956 | 1.4435 | 4.2116 | 0.0115      | 0.7546        | 0.0240       | 0.7785     | 0.2022         | 0.0221        | 0.2243      |          | 965.4248  | 965.4248    | 0.0293 |        | 966.0405 |  |

### 3.2 Building Construction - 2019

#### Unmitigated Construction On-Site

|          | ROG    | NOx     | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2  | Total CO2  | CH4    | N2O | CO2e       |  |
|----------|--------|---------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|-----|------------|--|
| Category | lb/day |         |         |        |               |              |            |                |               |             |          | lb/day     |            |        |     |            |  |
| Off-Road | 2.3516 | 20.9650 | 17.1204 | 0.0268 |               | 1.2850       | 1.2850     |                | 1.2083        | 1.2083      |          | 2,580.7618 | 2,580.7618 | 0.6279 |     | 2,593.9479 |  |
| Total    | 2.3516 | 20.9650 | 17.1204 | 0.0268 |               | 1.2850       | 1.2850     |                | 1.2083        | 1.2083      |          | 2,580.7618 | 2,580.7618 | 0.6279 |     | 2,593.9479 |  |

#### 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   | 0.1204 | 1.1391 | 1.4695 | 3.6700e-003 | 0.1063        | 0.0183       | 0.1246     | 0.0303         | 0.0168        | 0.0471      |          | 351.5465  | 351.5465  | 2.5400e-003 |     | 351.5998 |  |
| Worker   | 0.1565 | 0.1996 | 2.4831 | 7.9000e-003 | 0.6483        | 4.4100e-003  | 0.6527     | 0.1719         | 4.0900e-003   | 0.1760      |          | 589.9690  | 589.9690  | 0.0256      |     | 590.5062 |  |
| Total    | 0.2769 | 1.3387 | 3.9527 | 0.0116      | 0.7546        | 0.0227       | 0.7773     | 0.2022         | 0.0209        | 0.2231      |          | 941.5155  | 941.5155  | 0.0281      |     | 942.1060 |  |

### 3.2 Building Construction - 2019

#### Mitigated Construction On-Site

|          | ROG    | NOx     | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2  | Total CO2  | CH4    | N2O | CO2e       |  |
|----------|--------|---------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|-----|------------|--|
| Category | lb/day |         |         |        |               |              |            |                |               |             |          | lb/day     |            |        |     |            |  |
| Off-Road | 2.3516 | 20.9650 | 17.1204 | 0.0268 |               | 1.2850       | 1.2850     |                | 1.2083        | 1.2083      | 0.0000   | 2,580.7618 | 2,580.7618 | 0.6279 |     | 2,593.9479 |  |
| Total    | 2.3516 | 20.9650 | 17.1204 | 0.0268 |               | 1.2850       | 1.2850     |                | 1.2083        | 1.2083      | 0.0000   | 2,580.7618 | 2,580.7618 | 0.6279 |     | 2,593.9479 |  |

#### 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 | 0.0000 | 0.0000   |          |
| Vendor   | 0.1204 | 1.1391 | 1.4695 | 3.6700e-003 | 0.1063        | 0.0183       | 0.1246     | 0.0303         | 0.0168        | 0.0471      | 351.5465 | 351.5465  | 2.5400e-003 |        |        | 351.5998 |          |
| Worker   | 0.1565 | 0.1996 | 2.4831 | 7.9000e-003 | 0.6483        | 4.4100e-003  | 0.6527     | 0.1719         | 4.0900e-003   | 0.1760      | 589.9690 | 589.9690  | 0.0256      |        |        | 590.5062 |          |
| Total    | 0.2769 | 1.3387 | 3.9527 | 0.0116      | 0.7546        | 0.0227       | 0.7773     | 0.2022         | 0.0209        | 0.2231      |          | 941.5155  | 941.5155    | 0.0281 |        |          | 942.1060 |

### 3.3 Architectural Coating - 2018

#### 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 | 4.5052 |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |           | 0.0000    |        |     | 0.0000   |
| Off-Road        | 0.2986 | 2.0058 | 1.8542 | 2.9700e-003 |               | 0.1506       | 0.1506     |                | 0.1506        | 0.1506      |          | 281.4485  | 281.4485  | 0.0267 |     | 282.0102 |
| Total           | 4.8039 | 2.0058 | 1.8542 | 2.9700e-003 |               | 0.1506       | 0.1506     |                | 0.1506        | 0.1506      |          | 281.4485  | 281.4485  | 0.0267 |     | 282.0102 |

#### 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   | 0.0346 | 0.0446 | 0.5503 | 1.6300e-003 | 0.1341        | 9.1000e-004  | 0.1350     | 0.0356         | 8.4000e-004   | 0.0364      |          | 125.9839  | 125.9839  | 5.5400e-003 |     | 126.1003 |
| Total    | 0.0346 | 0.0446 | 0.5503 | 1.6300e-003 | 0.1341        | 9.1000e-004  | 0.1350     | 0.0356         | 8.4000e-004   | 0.0364      |          | 125.9839  | 125.9839  | 5.5400e-003 |     | 126.1003 |

### 3.3 Architectural Coating - 2018

#### 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 | 4.5052 |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |           | 0.0000    |        |     | 0.0000   |
| Off-Road        | 0.2986 | 2.0058 | 1.8542 | 2.9700e-003 |               | 0.1506       | 0.1506     |                | 0.1506        | 0.1506      | 0.0000   | 281.4485  | 281.4485  | 0.0267 |     | 282.0102 |
| Total           | 4.8039 | 2.0058 | 1.8542 | 2.9700e-003 |               | 0.1506       | 0.1506     |                | 0.1506        | 0.1506      | 0.0000   | 281.4485  | 281.4485  | 0.0267 |     | 282.0102 |

#### 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 |     | 0.0000   |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000      | 0.0000 |     | 0.0000   |
| Worker   | 0.0346 | 0.0446 | 0.5503 | 1.6300e-003 | 0.1341        | 9.1000e-004  | 0.1350     | 0.0356         | 8.4000e-004   | 0.0364      | 125.9839 | 125.9839  | 5.5400e-003 |        |     | 126.1003 |
| Total    | 0.0346 | 0.0446 | 0.5503 | 1.6300e-003 | 0.1341        | 9.1000e-004  | 0.1350     | 0.0356         | 8.4000e-004   | 0.0364      | 125.9839 | 125.9839  | 5.5400e-003 |        |     | 126.1003 |

### 3.3 Architectural Coating - 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   |                 |                 |               |     |                 |
| Archit. Coating | 4.5052        |               |               |                    |               |               | 0.0000        | 0.0000         |               | 0.0000        | 0.0000   |                 | 0.0000          |               |     | 0.0000          |
| Off-Road        | 0.2664        | 1.8354        | 1.8413        | 2.9700e-003        |               | 0.1288        | 0.1288        |                | 0.1288        | 0.1288        |          | 281.4481        | 281.4481        | 0.0238        |     | 281.9473        |
| <b>Total</b>    | <b>4.7717</b> | <b>1.8354</b> | <b>1.8413</b> | <b>2.9700e-003</b> |               | <b>0.1288</b> | <b>0.1288</b> |                | <b>0.1288</b> | <b>0.1288</b> |          | <b>281.4481</b> | <b>281.4481</b> | <b>0.0238</b> |     | <b>281.9473</b> |

#### Unmitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        |          | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Worker       | 0.0324        | 0.0413        | 0.5138        | 1.6400e-003        | 0.1341        | 9.1000e-004        | 0.1350        | 0.0356         | 8.5000e-004        | 0.0364        |          | 122.0625        | 122.0625        | 5.2900e-003        |     | 122.1737        |
| <b>Total</b> | <b>0.0324</b> | <b>0.0413</b> | <b>0.5138</b> | <b>1.6400e-003</b> | <b>0.1341</b> | <b>9.1000e-004</b> | <b>0.1350</b> | <b>0.0356</b>  | <b>8.5000e-004</b> | <b>0.0364</b> |          | <b>122.0625</b> | <b>122.0625</b> | <b>5.2900e-003</b> |     | <b>122.1737</b> |

### 3.3 Architectural Coating - 2019

#### Mitigated Construction On-Site

|                 | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2       | Total CO2       | CH4           | N2O | CO2e            |
|-----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|-----|-----------------|
| Category        | lb/day        |               |               |                    |               |               |               |                |               |               | lb/day        |                 |                 |               |     |                 |
| Archit. Coating | 4.5052        |               |               |                    |               |               | 0.0000        | 0.0000         |               | 0.0000        | 0.0000        |                 | 0.0000          |               |     | 0.0000          |
| Off-Road        | 0.2664        | 1.8354        | 1.8413        | 2.9700e-003        |               | 0.1288        | 0.1288        |                | 0.1288        | 0.1288        | 0.0000        | 281.4481        | 281.4481        | 0.0238        |     | 281.9473        |
| <b>Total</b>    | <b>4.7717</b> | <b>1.8354</b> | <b>1.8413</b> | <b>2.9700e-003</b> |               | <b>0.1288</b> | <b>0.1288</b> |                | <b>0.1288</b> | <b>0.1288</b> | <b>0.0000</b> | <b>281.4481</b> | <b>281.4481</b> | <b>0.0238</b> |     | <b>281.9473</b> |

#### Mitigated Construction Off-Site

|              | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10       | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5      | PM2.5 Total   | Bio- CO2 | NBio- CO2       | Total CO2       | CH4                | N2O | CO2e            |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|----------|-----------------|-----------------|--------------------|-----|-----------------|
| Category     | lb/day        |               |               |                    |               |                    |               |                |                    |               | lb/day   |                 |                 |                    |     |                 |
| Hauling      | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        | 0.0000   | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Vendor       | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 0.0000         | 0.0000             | 0.0000        | 0.0000   | 0.0000          | 0.0000          | 0.0000             |     | 0.0000          |
| Worker       | 0.0324        | 0.0413        | 0.5138        | 1.6400e-003        | 0.1341        | 9.1000e-004        | 0.1350        | 0.0356         | 8.5000e-004        | 0.0364        |          | 122.0625        | 122.0625        | 5.2900e-003        |     | 122.1737        |
| <b>Total</b> | <b>0.0324</b> | <b>0.0413</b> | <b>0.5138</b> | <b>1.6400e-003</b> | <b>0.1341</b> | <b>9.1000e-004</b> | <b>0.1350</b> | <b>0.0356</b>  | <b>8.5000e-004</b> | <b>0.0364</b> |          | <b>122.0625</b> | <b>122.0625</b> | <b>5.2900e-003</b> |     | <b>122.1737</b> |

### 3.4 Paving - 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 | 1.3301 | 13.7845 | 14.3523 | 0.0223 |               | 0.7390       | 0.7390     |                | 0.6799        | 0.6799      | 2,160.757<br>1 | 2,160.757<br>1 | 0.6988    |     |     | 2,175.432<br>6 |
| Paving   | 0.0000 |         |         |        |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      |                |                | 0.0000    |     |     | 0.0000         |
| Total    | 1.3301 | 13.7845 | 14.3523 | 0.0223 |               | 0.7390       | 0.7390     |                | 0.6799        | 0.6799      | 2,160.757<br>1 | 2,160.757<br>1 | 0.6988    |     |     | 2,175.432<br>6 |

#### 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 | 0.0000 | 0.0000   |
| Vendor   | 0.0000 | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000      | 0.0000 | 0.0000 | 0.0000   |
| Worker   | 0.0383 | 0.0482 | 0.6030 | 2.0400e-003 | 0.1677        | 1.1500e-003  | 0.1688     | 0.0445         | 1.0600e-003   | 0.0455      | 146.4720 | 146.4720  | 6.3000e-003 |        |        | 146.6044 |
| Total    | 0.0383 | 0.0482 | 0.6030 | 2.0400e-003 | 0.1677        | 1.1500e-003  | 0.1688     | 0.0445         | 1.0600e-003   | 0.0455      | 146.4720 | 146.4720  | 6.3000e-003 |        |        | 146.6044 |

### 3.4 Paving - 2020

#### Mitigated Construction On-Site

|          | ROG    | NOx     | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2      | Total CO2      | CH4    | N2O | CO2e           |  |
|----------|--------|---------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------------|----------------|--------|-----|----------------|--|
| Category | lb/day |         |         |        |               |              |            |                |               |             |          | lb/day         |                |        |     |                |  |
| Off-Road | 1.3301 | 13.7845 | 14.3523 | 0.0223 |               | 0.7390       | 0.7390     |                | 0.6799        | 0.6799      | 0.0000   | 2,160.757<br>1 | 2,160.757<br>1 | 0.6988 |     | 2,175.432<br>6 |  |
| Paving   | 0.0000 |         |         |        |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      |          |                | 0.0000         |        |     | 0.0000         |  |
| Total    | 1.3301 | 13.7845 | 14.3523 | 0.0223 |               | 0.7390       | 0.7390     |                | 0.6799        | 0.6799      | 0.0000   | 2,160.757<br>1 | 2,160.757<br>1 | 0.6988 |     | 2,175.432<br>6 |  |

#### 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   | 0.0383 | 0.0482 | 0.6030 | 2.0400e-003 | 0.1677        | 1.1500e-003  | 0.1688     | 0.0445         | 1.0600e-003   | 0.0455      |          | 146.4720  | 146.4720  | 6.3000e-003 |     | 146.6044 |  |
| Total    | 0.0383 | 0.0482 | 0.6030 | 2.0400e-003 | 0.1677        | 1.1500e-003  | 0.1688     | 0.0445         | 1.0600e-003   | 0.0455      |          | 146.4720  | 146.4720  | 6.3000e-003 |     | 146.6044 |  |

### 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   | 4.2266 | 9.7433 | 48.3632 | 0.1633 | 11.6468       | 0.1619       | 11.8087    | 3.1078         | 0.1495        | 3.2573      | 12,437.09 | 12,437.09 | 0.4381    |     |     | 12,446.29 |  |
| Unmitigated | 4.2266 | 9.7433 | 48.3632 | 0.1633 | 11.6468       | 0.1619       | 11.8087    | 3.1078         | 0.1495        | 3.2573      | 12,437.09 | 12,437.09 | 0.4381    |     |     | 12,446.29 |  |

## 4.2 Trip Summary Information

| Land Use              | Average Daily Trip Rate |          |          | Unmitigated |            | Mitigated  |            |
|-----------------------|-------------------------|----------|----------|-------------|------------|------------|------------|
|                       | Weekday                 | Saturday | Sunday   | Annual VMT  | Annual VMT | Annual VMT | Annual VMT |
| Single Family Housing | 1,531.20                | 1,612.80 | 1403.20  | 5,209,692   | 5,209,692  | 5,209,692  | 5,209,692  |
| Total                 | 1,531.20                | 1,612.80 | 1,403.20 | 5,209,692   | 5,209,692  | 5,209,692  | 5,209,692  |

## 4.3 Trip Type Information

| Land Use              | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                       | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Single Family Housing | 14.70      | 5.90       | 8.70        | 40.20      | 19.20      | 40.60       | 86             | 11       | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.508857 | 0.056420 | 0.193204 | 0.150829 | 0.041936 | 0.005921 | 0.015893 | 0.015805 | 0.001454 | 0.002159 | 0.004747 | 0.000498 | 0.002277 |

## 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   | 0.1365 | 1.1668 | 0.4965 | 7.4500e-003 |               |              | 0.0943     | 0.0943         |               | 0.0943      | 0.0943   | 1,489.560 | 1,489.560 | 0.0286 | 0.0273 | 1,498.625 |  |
| NaturalGas Unmitigated | 0.1365 | 1.1668 | 0.4965 | 7.4500e-003 |               |              | 0.0943     | 0.0943         |               | 0.0943      | 0.0943   | 1,489.560 | 1,489.560 | 0.0286 | 0.0273 | 1,498.625 |  |

## 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 | 12661.3        | 0.1365 | 1.1668 | 0.4965 | 7.4500e-003 |               |              | 0.0943     | 0.0943         |               | 0.0943      | 0.0943   | 1,489.560 | 1,489.560 | 0.0286 | 0.0273 | 1,498.625 |  |
| Total                 |                | 0.1365 | 1.1668 | 0.4965 | 7.4500e-003 |               |              | 0.0943     | 0.0943         |               | 0.0943      | 0.0943   | 1,489.560 | 1,489.560 | 0.0286 | 0.0273 | 1,498.625 |  |

## 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 | 12.6613        | 0.1365 | 1.1668 | 0.4965 | 7.4500e-003 |               |              | 0.0943     | 0.0943         |               | 0.0943      | 1,489.560 | 1,489.560 | 0.0286    | 0.0273 | 1,498.625 |      |
| Total                 |                | 0.1365 | 1.1668 | 0.4965 | 7.4500e-003 |               |              | 0.0943     | 0.0943         |               | 0.0943      | 1,489.560 | 1,489.560 | 0.0286    | 0.0273 | 1,498.625 |      |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

Use only Natural Gas Hearths

|             | ROG     | NOx    | CO      | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2  | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e      |
|-------------|---------|--------|---------|-------------|---------------|--------------|------------|----------------|---------------|-------------|-----------|-----------|-----------|--------|--------|-----------|
| Category    | lb/day  |        |         |             |               |              |            |                |               |             | lb/day    |           |           |        |        |           |
| Mitigated   | 7.0024  | 0.1532 | 13.2593 | 7.0000e-004 |               | 0.2660       | 0.2660     |                | 0.2639        | 0.2639      | 0.0000    | 3,073.180 | 3,073.180 | 0.0816 | 0.0559 | 3,092.225 |
| Unmitigated | 48.6486 | 1.2169 | 93.6668 | 0.1287      |               | 12.2950      | 12.2950    |                | 12.2930       | 12.2930     | 1,498.706 | 2,903.768 | 4,402.475 | 4.4926 | 0.1017 | 4,528.353 |

## 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 | 0.6172         |               |                |               |               | 0.0000         | 0.0000         |                | 0.0000         | 0.0000         |                        |                        | 0.0000                 |               |               | 0.0000                 |
| Consumer Products     | 5.7024         |               |                |               |               | 0.0000         | 0.0000         |                | 0.0000         | 0.0000         |                        |                        | 0.0000                 |               |               | 0.0000                 |
| Hearth                | 41.9258        | 1.0637        | 80.4227        | 0.1280        |               | 12.2221        | 12.2221        |                | 12.2202        | 12.2202        | 1,498.706<br>9         | 2,880.000<br>0         | 4,378.706<br>9         | 4.4694        | 0.1017        | 4,504.098<br>8         |
| Landscaping           | 0.4033         | 0.1532        | 13.2441        | 7.0000e-004   |               | 0.0728         | 0.0728         |                | 0.0728         | 0.0728         |                        | 23.7684                | 23.7684                | 0.0232        |               | 24.2551                |
| <b>Total</b>          | <b>48.6486</b> | <b>1.2169</b> | <b>93.6668</b> | <b>0.1287</b> |               | <b>12.2950</b> | <b>12.2950</b> |                | <b>12.2930</b> | <b>12.2930</b> | <b>1,498.706<br/>9</b> | <b>2,903.768<br/>4</b> | <b>4,402.475<br/>3</b> | <b>4.4926</b> | <b>0.1017</b> | <b>4,528.353<br/>8</b> |

## 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 | 0.6172 |             |         |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |            |            | 0.0000 |        | 0.0000     |
| Consumer Products     | 5.7024 |             |         |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |            |            | 0.0000 |        | 0.0000     |
| Hearth                | 0.2795 | 1.0000e-005 | 0.0153  | 0.0000      |               | 0.1931       | 0.1931     |                | 0.1911        | 0.1911      | 0.0000   | 3,049.4118 | 3,049.4118 | 0.0585 | 0.0559 | 3,067.9700 |
| Landscaping           | 0.4033 | 0.1532      | 13.2441 | 7.0000e-004 |               | 0.0728       | 0.0728     |                | 0.0728        | 0.0728      |          | 23.7684    | 23.7684    | 0.0232 |        | 24.2551    |
| Total                 | 7.0024 | 0.1532      | 13.2593 | 7.0000e-004 |               | 0.2660       | 0.2660     |                | 0.2639        | 0.2639      | 0.0000   | 3,073.1801 | 3,073.1801 | 0.0816 | 0.0559 | 3,092.2251 |

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

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

## 10.0 Vegetation

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**Esperanza Option 1 P1**  
**South Coast AQMD Air District, Annual**

## 1.0 Project Characteristics

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### 1.1 Land Usage

| Land Uses             | Size   | Metric        | Lot Acreage | Floor Surface Area | Population |
|-----------------------|--------|---------------|-------------|--------------------|------------|
| Single Family Housing | 218.00 | Dwelling Unit | 70.78       | 392,400.00         | 623        |

### 1.2 Other Project Characteristics

|                            |                            |                            |       |                            |       |
|----------------------------|----------------------------|----------------------------|-------|----------------------------|-------|
| Urbanization               | Urban                      | Wind Speed (m/s)           | 2.2   | Precipitation Freq (Days)  | 31    |
| Climate Zone               | 8                          |                            |       | Operational Year           | 2018  |
| Utility Company            | Southern California Edison |                            |       |                            |       |
| CO2 Intensity<br>(lb/MWhr) | 630.89                     | CH4 Intensity<br>(lb/MWhr) | 0.029 | N2O Intensity<br>(lb/MWhr) | 0.006 |

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

**Project Characteristics -****Land Use -**

Construction Phase - Prep 30 days, Grading 175 days, Construction 700 days, Paving 15 days

Off-road Equipment - Prep: 3 dozers, 4 loader/backhoes

Off-road Equipment - Grading: 2 excavators, 2 graders (default is 1), 1 dozer, 5 scrapers (default is 2) 2 loader/backhoes

Off-road Equipment - Construction 1 crane, 3 f/l, 1 gen set, 3 loader/backhoes, 1 welder

Off-road Equipment - Paving: 2 pavers, 2 paving equipment, 2 rollers

Grading - 286700 CY Borrow

Trips and VMT - 35838 haul trips, 1000 ft

Construction Off-road Equipment Mitigation - Tier 3 for scrapers, dozers, excavators and graders

**Area Mitigation -**

| Table Name                | Column Name                | Default Value | New Value  |
|---------------------------|----------------------------|---------------|------------|
| tblConstEquipMitigation   | NumberOfEquipmentMitigated | 0.00          | 2.00       |
| tblConstEquipMitigation   | NumberOfEquipmentMitigated | 0.00          | 2.00       |
| tblConstEquipMitigation   | NumberOfEquipmentMitigated | 0.00          | 4.00       |
| tblConstEquipMitigation   | NumberOfEquipmentMitigated | 0.00          | 5.00       |
| tblConstEquipMitigation   | Tier                       | No Change     | Tier 3     |
| tblConstEquipMitigation   | Tier                       | No Change     | Tier 3     |
| tblConstEquipMitigation   | Tier                       | No Change     | Tier 3     |
| tblConstEquipMitigation   | Tier                       | No Change     | Tier 3     |
| tblConstructionPhase      | NumDays                    | 75.00         | 700.00     |
| tblConstructionPhase      | NumDays                    | 1,110.00      | 700.00     |
| tblConstructionPhase      | NumDays                    | 110.00        | 175.00     |
| tblConstructionPhase      | NumDays                    | 75.00         | 15.00      |
| tblConstructionPhase      | NumDays                    | 40.00         | 30.00      |
| tblConstructionPhase      | PhaseEndDate               | 3/12/2021     | 7/8/2018   |
| tblConstructionPhase      | PhaseEndDate               | 6/20/2018     | 7/6/2018   |
| tblConstructionPhase      | PhaseStartDate             | 7/7/2018      | 11/1/2015  |
| tblConstructionPhase      | PhaseStartDate             | 10/15/2015    | 11/1/2015  |
| tblConstructionPhase      | PhaseStartDate             | 7/9/2018      | 7/7/2018   |
| tblGrading                | AcresOfGrading             | 1,050.00      | 275.00     |
| tblGrading                | MaterialImported           | 0.00          | 286,700.00 |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 1.00          | 2.00       |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 2.00          | 5.00       |
| tblProjectCharacteristics | OperationalYear            | 2014          | 2018       |
| tblTripsAndVMT            | HaulingTripLength          | 20.00         | 0.20       |

## 2.0 Emissions Summary

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## 2.1 Overall Construction

### Unmitigated Construction

|       | ROG     | NOx     | CO      | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2  | Total CO2  | CH4    | N2O    | CO2e       |  |
|-------|---------|---------|---------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|------------|------------|--------|--------|------------|--|
| Year  | tons/yr |         |         |             |               |              |            |                |               |             |          | MT/yr      |            |        |        |            |  |
| 2015  | 1.5035  | 14.8517 | 12.0967 | 0.0124      | 1.0210        | 0.6849       | 1.7059     | 0.4731         | 0.6315        | 1.1046      | 0.0000   | 1,158.3750 | 1,158.3750 | 0.3155 | 0.0000 | 1,165.0003 |  |
| 2016  | 1.1407  | 4.3731  | 3.7630  | 6.1900e-003 | 0.1531        | 0.2878       | 0.4409     | 0.0410         | 0.2719        | 0.3129      | 0.0000   | 534.5781   | 534.5781   | 0.0895 | 0.0000 | 536.4581   |  |
| 2017  | 1.0847  | 4.0274  | 3.6056  | 6.1700e-003 | 0.1525        | 0.2590       | 0.4115     | 0.0409         | 0.2445        | 0.2854      | 0.0000   | 523.2755   | 523.2755   | 0.0868 | 0.0000 | 525.0979   |  |
| 2018  | 0.5410  | 1.9824  | 1.9049  | 3.3800e-003 | 0.0804        | 0.1205       | 0.2009     | 0.0215         | 0.1137        | 0.1352      | 0.0000   | 283.3728   | 283.3728   | 0.0488 | 0.0000 | 284.3971   |  |
| Total | 4.2699  | 25.2346 | 21.3702 | 0.0281      | 1.4069        | 1.3523       | 2.7592     | 0.5765         | 1.2616        | 1.8381      | 0.0000   | 2,499.6013 | 2,499.6013 | 0.5406 | 0.0000 | 2,510.9534 |  |

## 2.1 Overall Construction

### Mitigated Construction

|       | ROG     | NOx     | CO      | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2      | Total CO2      | CH4    | N2O    | CO2e           |  |
|-------|---------|---------|---------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------------|----------------|--------|--------|----------------|--|
| Year  | tons/yr |         |         |             |               |              |            |                |               |             |          | MT/yr          |                |        |        |                |  |
| 2015  | 0.6830  | 6.6618  | 9.7179  | 0.0124      | 0.4354        | 0.3030       | 0.7384     | 0.1945         | 0.2948        | 0.4893      | 0.0000   | 1,158.373<br>7 | 1,158.373<br>7 | 0.3155 | 0.0000 | 1,164.999<br>0 |  |
| 2016  | 1.1407  | 4.3731  | 3.7630  | 6.1900e-003 | 0.1531        | 0.2878       | 0.4409     | 0.0410         | 0.2719        | 0.3129      | 0.0000   | 534.5777       | 534.5777       | 0.0895 | 0.0000 | 536.4577       |  |
| 2017  | 1.0847  | 4.0274  | 3.6056  | 6.1700e-003 | 0.1525        | 0.2590       | 0.4115     | 0.0409         | 0.2445        | 0.2854      | 0.0000   | 523.2751       | 523.2751       | 0.0868 | 0.0000 | 525.0975       |  |
| 2018  | 0.5410  | 1.9824  | 1.9049  | 3.3800e-003 | 0.0804        | 0.1205       | 0.2009     | 0.0215         | 0.1137        | 0.1352      | 0.0000   | 283.3725       | 283.3725       | 0.0488 | 0.0000 | 284.3969       |  |
| Total | 3.4494  | 17.0447 | 18.9913 | 0.0281      | 0.8213        | 0.9703       | 1.7916     | 0.2979         | 0.9249        | 1.2228      | 0.0000   | 2,499.599<br>0 | 2,499.599<br>0 | 0.5406 | 0.0000 | 2,510.951<br>1 |  |

|                   | ROG   | NOx   | CO    | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|-------|-------|-------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 19.22 | 32.46 | 11.13 | 0.00 | 41.62         | 28.25        | 35.07      | 48.33          | 26.69         | 33.47       | 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     | tons/yr       |               |                |               |               |               |               |                |               |               |                | MT/yr             |                   |               |               |                   |  |
| Area         | 2.3552        | 0.0444        | 3.6338         | 2.3000e-003   |               | 0.2205        | 0.2205        |                | 0.2205        | 0.2205        | 23.1558        | 48.1697           | 71.3255           | 0.0727        | 1.5700e-003   | 73.3393           |  |
| Energy       | 0.0340        | 0.2901        | 0.1235         | 1.8500e-003   |               | 0.0235        | 0.0235        |                | 0.0235        | 0.0235        | 0.0000         | 778.2954          | 778.2954          | 0.0268        | 0.0104        | 782.0712          |  |
| Mobile       | 1.2209        | 3.9081        | 14.5599        | 0.0394        | 2.6903        | 0.0564        | 2.7467        | 0.7199         | 0.0519        | 0.7719        | 0.0000         | 2,957.1890        | 2,957.1890        | 0.1111        | 0.0000        | 2,959.5212        |  |
| Waste        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 51.8500        | 0.0000            | 51.8500           | 3.0643        | 0.0000        | 116.1992          |  |
| Water        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 4.5061         | 81.3940           | 85.9002           | 0.4666        | 0.0117        | 99.3258           |  |
| <b>Total</b> | <b>3.6101</b> | <b>4.2427</b> | <b>18.3171</b> | <b>0.0436</b> | <b>2.6903</b> | <b>0.3003</b> | <b>2.9907</b> | <b>0.7199</b>  | <b>0.2959</b> | <b>1.0158</b> | <b>79.5119</b> | <b>3,865.0481</b> | <b>3,944.5600</b> | <b>3.7413</b> | <b>0.0236</b> | <b>4,030.4565</b> |  |

## 2.2 Overall Operational

### Mitigated Operational

|              | ROG           | NOx           | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2       | NBio- CO2         | Total CO2         | CH4           | N2O           | CO2e              |  |
|--------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-------------------|-------------------|---------------|---------------|-------------------|--|
| Category     | tons/yr       |               |                |               |               |               |               |                |               |               |                | MT/yr             |                   |               |               |                   |  |
| Area         | 1.6460        | 0.0263        | 2.2643         | 1.2000e-004   |               | 0.0157        | 0.0157        |                | 0.0156        | 0.0156        | 0.0000         | 50.7872           | 50.7872           | 4.5400e-003   | 8.6000e-004   | 51.1504           |  |
| Energy       | 0.0340        | 0.2901        | 0.1235         | 1.8500e-003   |               | 0.0235        | 0.0235        |                | 0.0235        | 0.0235        | 0.0000         | 778.2954          | 778.2954          | 0.0268        | 0.0104        | 782.0712          |  |
| Mobile       | 1.2209        | 3.9081        | 14.5599        | 0.0394        | 2.6903        | 0.0564        | 2.7467        | 0.7199         | 0.0519        | 0.7719        | 0.0000         | 2,957.1890        | 2,957.1890        | 0.1111        | 0.0000        | 2,959.5212        |  |
| Waste        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 51.8500        | 0.0000            | 51.8500           | 3.0643        | 0.0000        | 116.1992          |  |
| Water        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 4.5061         | 81.3940           | 85.9002           | 0.4665        | 0.0117        | 99.3186           |  |
| <b>Total</b> | <b>2.9008</b> | <b>4.2245</b> | <b>16.9477</b> | <b>0.0414</b> | <b>2.6903</b> | <b>0.0955</b> | <b>2.7858</b> | <b>0.7199</b>  | <b>0.0910</b> | <b>0.8109</b> | <b>56.3561</b> | <b>3,867.6656</b> | <b>3,924.0217</b> | <b>3.6731</b> | <b>0.0229</b> | <b>4,008.2605</b> |  |

|                   | ROG   | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|-------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 19.65 | 0.43 | 7.48 | 5.00 | 0.00          | 68.21        | 6.85       | 0.00           | 69.25         | 20.17       | 29.12    | -0.07    | 0.52      | 1.82 | 3.09 | 0.55 |

## 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      | 1/1/2015   | 2/11/2015  | 5             | 30       |                   |
| 2            | Grading               | Grading               | 2/12/2015  | 10/14/2015 | 5             | 175      |                   |
| 3            | Building Construction | Building Construction | 11/1/2015  | 7/6/2018   | 5             | 700      |                   |
| 4            | Architectural Coating | Architectural Coating | 11/1/2015  | 7/8/2018   | 5             | 700      |                   |
| 5            | Paving                | Paving                | 7/7/2018   | 7/27/2018  | 5             | 15       |                   |

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

**Acres of Grading (Grading Phase): 275**

**Acres of Paving: 0**

**Residential Indoor: 794,610; Residential Outdoor: 264,870; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)**

#### OffRoad Equipment

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Site Preparation      | Rubber Tired Dozers       | 3      | 8.00        | 255         | 0.40        |
| Site Preparation      | Tractors/Loaders/Backhoes | 4      | 8.00        | 97          | 0.37        |
| Grading               | Excavators                | 2      | 8.00        | 162         | 0.38        |
| Grading               | Graders                   | 2      | 8.00        | 174         | 0.41        |
| Grading               | Rubber Tired Dozers       | 1      | 8.00        | 255         | 0.40        |
| Grading               | Scrapers                  | 5      | 8.00        | 361         | 0.48        |
| Grading               | Tractors/Loaders/Backhoes | 2      | 8.00        | 97          | 0.37        |
| Building Construction | Cranes                    | 1      | 7.00        | 226         | 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        | 125         | 0.42        |
| Paving                | Paving Equipment          | 2      | 8.00        | 130         | 0.36        |
| Paving                | Rollers                   | 2      | 8.00        | 80          | 0.38        |
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |

### Trips and VMT

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Site Preparation      | 7                       | 18.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading               | 12                      | 30.00              | 0.00               | 35,838.00           | 14.70              | 6.90               | 0.20                | LD_Mix               | HDT_Mix              | HHDT                  |
| Building Construction | 9                       | 78.00              | 23.00              | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 6                       | 15.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 16.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

### 3.2 Site Preparation - 2015

#### Unmitigated Construction On-Site

|               | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4           | N2O           | CO2e           |  |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|--|
| Category      | tons/yr       |               |               |                    |               |               |               |                |               |               |               | MT/yr          |                |               |               |                |  |
| Fugitive Dust |               |               |               |                    | 0.2710        | 0.0000        | 0.2710        | 0.1490         | 0.0000        | 0.1490        | 0.0000        | 0.0000         | 0.0000         | 0.0000        | 0.0000        | 0.0000         |  |
| Off-Road      | 0.0789        | 0.8533        | 0.6395        | 5.9000e-004        |               | 0.0463        | 0.0463        |                | 0.0426        | 0.0426        | 0.0000        | 55.9517        | 55.9517        | 0.0167        | 0.0000        | 56.3025        |  |
| <b>Total</b>  | <b>0.0789</b> | <b>0.8533</b> | <b>0.6395</b> | <b>5.9000e-004</b> | <b>0.2710</b> | <b>0.0463</b> | <b>0.3173</b> | <b>0.1490</b>  | <b>0.0426</b> | <b>0.1916</b> | <b>0.0000</b> | <b>55.9517</b> | <b>55.9517</b> | <b>0.0167</b> | <b>0.0000</b> | <b>56.3025</b> |  |

### 3.2 Site Preparation - 2015

#### Unmitigated Construction Off-Site

|          | ROG         | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |  |
|----------|-------------|-------------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|--|
| Category | tons/yr     |             |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |        |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Worker   | 1.2100e-003 | 1.7700e-003 | 0.0184 | 4.0000e-005 | 2.9600e-005   | 3.0000e-005  | 2.9900e-003 | 7.9000e-004    | 2.0000e-005   | 8.1000e-004 | 0.0000   | 2.8746    | 2.8746    | 1.6000e-004 | 0.0000 | 2.8780 |  |
| Total    | 1.2100e-003 | 1.7700e-003 | 0.0184 | 4.0000e-005 | 2.9600e-003   | 3.0000e-005  | 2.9900e-003 | 7.9000e-004    | 2.0000e-005   | 8.1000e-004 | 0.0000   | 2.8746    | 2.8746    | 1.6000e-004 | 0.0000 | 2.8780 |  |

#### Mitigated Construction On-Site

|               | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e    |
|---------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|---------|
| Category      | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |        |        |         |
| Fugitive Dust |         |        |        |             | 0.1057        | 0.0000       | 0.1057     | 0.0581         | 0.0000        | 0.0581      | 0.0000   | 0.0000    | 0.0000    | 0.0000 | 0.0000 | 0.0000  |
| Off-Road      | 0.0313  | 0.3937 | 0.3560 | 5.9000e-004 |               | 0.0232       | 0.0232     |                | 0.0220        | 0.0220      | 0.0000   | 55.9516   | 55.9516   | 0.0167 | 0.0000 | 56.3024 |
| Total         | 0.0313  | 0.3937 | 0.3560 | 5.9000e-004 | 0.1057        | 0.0232       | 0.1289     | 0.0581         | 0.0220        | 0.0800      | 0.0000   | 55.9516   | 55.9516   | 0.0167 | 0.0000 | 56.3024 |

### 3.2 Site Preparation - 2015

#### Mitigated Construction Off-Site

|          | ROG         | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |  |
|----------|-------------|-------------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|--|
| Category | tons/yr     |             |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |        |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Worker   | 1.2100e-003 | 1.7700e-003 | 0.0184 | 4.0000e-005 | 2.9600e-005   | 3.0000e-005  | 2.9900e-003 | 7.9000e-004    | 2.0000e-005   | 8.1000e-004 | 0.0000   | 2.8746    | 2.8746    | 1.6000e-004 | 0.0000 | 2.8780 |  |
| Total    | 1.2100e-003 | 1.7700e-003 | 0.0184 | 4.0000e-005 | 2.9600e-003   | 3.0000e-005  | 2.9900e-003 | 7.9000e-004    | 2.0000e-005   | 8.1000e-004 | 0.0000   | 2.8746    | 2.8746    | 1.6000e-004 | 0.0000 | 2.8780 |  |

### 3.3 Grading - 2015

#### Unmitigated Construction On-Site

|               | ROG     | NOx     | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O      | CO2e     |
|---------------|---------|---------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|----------|----------|
| Category      | tons/yr |         |        |             |               |              |            |                |               |             | MT/yr    |           |           |        |          |          |
| Fugitive Dust |         |         |        |             | 0.6890        | 0.0000       | 0.6890     | 0.3078         | 0.0000        | 0.3078      | 0.0000   | 0.0000    | 0.0000    | 0.0000 | 0.0000   | 0.0000   |
| Off-Road      | 1.0646  | 12.7497 | 7.9232 | 9.8600e-003 | 0.5833        | 0.5833       |            | 0.5367         | 0.5367        | 0.0000      | 939.6092 | 939.6092  | 0.2805    | 0.0000 | 945.5000 |          |
| Total         | 1.0646  | 12.7497 | 7.9232 | 9.8600e-003 | 0.6890        | 0.5833       | 1.2723     | 0.3078         | 0.5367        | 0.8445      | 0.0000   | 939.6092  | 939.6092  | 0.2805 | 0.0000   | 945.5000 |

### 3.3 Grading - 2015

#### Unmitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|---------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr |        |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.1468  | 0.4472 | 2.6792 | 4.8000e-004 | 3.4400e-003   | 2.4700e-003  | 5.9200e-003 | 9.8000e-004    | 2.2600e-003   | 3.2300e-003 | 0.0000   | 40.5946   | 40.5946   | 1.0100e-003 | 0.0000 | 40.6158 |  |
| Vendor   | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 0.0117  | 0.0172 | 0.1784 | 3.5000e-004 | 0.0288        | 2.6000e-004  | 0.0291      | 7.6500e-003    | 2.4000e-004   | 7.8900e-003 | 0.0000   | 27.9474   | 27.9474   | 1.5800e-003 | 0.0000 | 27.9806 |  |
| Total    | 0.1586  | 0.4644 | 2.8576 | 8.3000e-004 | 0.0322        | 2.7300e-003  | 0.0350      | 8.6300e-003    | 2.5000e-003   | 0.0111      | 0.0000   | 68.5420   | 68.5420   | 2.5900e-003 | 0.0000 | 68.5964 |  |

#### Mitigated Construction On-Site

|               | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |  |
|---------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|--|
| Category      | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |        |        |          |  |
| Fugitive Dust |         |        |        |             | 0.2687        | 0.0000       | 0.2687     | 0.1201         | 0.0000        | 0.1201      | 0.0000   | 0.0000    | 0.0000    | 0.0000 | 0.0000 | 0.0000   |  |
| Off-Road      | 0.2916  | 5.0194 | 5.8278 | 9.8600e-003 |               | 0.2245       | 0.2245     |                | 0.2207        | 0.2207      | 0.0000   | 939.6081  | 939.6081  | 0.2805 | 0.0000 | 945.4989 |  |
| Total         | 0.2916  | 5.0194 | 5.8278 | 9.8600e-003 | 0.2687        | 0.2245       | 0.4932     | 0.1201         | 0.2207        | 0.3408      | 0.0000   | 939.6081  | 939.6081  | 0.2805 | 0.0000 | 945.4989 |  |

### 3.3 Grading - 2015

#### Mitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|---------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr |        |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.1468  | 0.4472 | 2.6792 | 4.8000e-004 | 3.4400e-003   | 2.4700e-003  | 5.9200e-003 | 9.8000e-004    | 2.2600e-003   | 3.2300e-003 | 0.0000   | 40.5946   | 40.5946   | 1.0100e-003 | 0.0000 | 40.6158 |  |
| Vendor   | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 0.0117  | 0.0172 | 0.1784 | 3.5000e-004 | 0.0288        | 2.6000e-004  | 0.0291      | 7.6500e-003    | 2.4000e-004   | 7.8900e-003 | 0.0000   | 27.9474   | 27.9474   | 1.5800e-003 | 0.0000 | 27.9806 |  |
| Total    | 0.1586  | 0.4644 | 2.8576 | 8.3000e-004 | 0.0322        | 2.7300e-003  | 0.0350      | 8.6300e-003    | 2.5000e-003   | 0.0111      | 0.0000   | 68.5420   | 68.5420   | 2.5900e-003 | 0.0000 | 68.5964 |  |

### 3.4 Building Construction - 2015

#### Unmitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e    |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|---------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |        |        |         |  |
| Off-Road | 0.0805  | 0.6607 | 0.4124 | 5.9000e-004 |               | 0.0466       | 0.0466     |                | 0.0438        | 0.0438      | 0.0000   | 53.6788   | 53.6788   | 0.0135 | 0.0000 | 53.9616 |  |
| Total    | 0.0805  | 0.6607 | 0.4124 | 5.9000e-004 |               | 0.0466       | 0.0466     |                | 0.0438        | 0.0438      | 0.0000   | 53.6788   | 53.6788   | 0.0135 | 0.0000 | 53.9616 |  |

### 3.4 Building Construction - 2015

#### Unmitigated Construction Off-Site

|          | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |        |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 5.0800e-003 | 0.0518 | 0.0633 | 1.1000e-004 | 3.1100e-003   | 8.7000e-004  | 3.9800e-003 | 8.9000e-004    | 8.0000e-004   | 1.6900e-003 | 0.0000   | 10.0843   | 10.0843   | 8.0000e-005 | 0.0000 | 10.0860 |  |
| Worker   | 7.6600e-003 | 0.0112 | 0.1166 | 2.3000e-004 | 0.0188        | 1.7000e-004  | 0.0190      | 5.0000e-003    | 1.5000e-004   | 5.1500e-003 | 0.0000   | 18.2696   | 18.2696   | 1.0300e-003 | 0.0000 | 18.2913 |  |
| Total    | 0.0127      | 0.0630 | 0.1799 | 3.4000e-004 | 0.0219        | 1.0400e-003  | 0.0230      | 5.8900e-003    | 9.5000e-004   | 6.8400e-003 | 0.0000   | 28.3539   | 28.3539   | 1.1100e-003 | 0.0000 | 28.3773 |  |

#### Mitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e    |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|---------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |        |        |         |  |
| Off-Road | 0.0805  | 0.6607 | 0.4124 | 5.9000e-004 |               | 0.0466       | 0.0466     |                | 0.0438        | 0.0438      | 0.0000   | 53.6787   | 53.6787   | 0.0135 | 0.0000 | 53.9615 |  |
| Total    | 0.0805  | 0.6607 | 0.4124 | 5.9000e-004 |               | 0.0466       | 0.0466     |                | 0.0438        | 0.0438      | 0.0000   | 53.6787   | 53.6787   | 0.0135 | 0.0000 | 53.9615 |  |

### 3.4 Building Construction - 2015

#### Mitigated Construction Off-Site

|          | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |        |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 5.0800e-003 | 0.0518 | 0.0633 | 1.1000e-004 | 3.1100e-003   | 8.7000e-004  | 3.9800e-003 | 8.9000e-004    | 8.0000e-004   | 1.6900e-003 | 0.0000   | 10.0843   | 10.0843   | 8.0000e-005 | 0.0000 | 10.0860 |  |
| Worker   | 7.6600e-003 | 0.0112 | 0.1166 | 2.3000e-004 | 0.0188        | 1.7000e-004  | 0.0190      | 5.0000e-003    | 1.5000e-004   | 5.1500e-003 | 0.0000   | 18.2696   | 18.2696   | 1.0300e-003 | 0.0000 | 18.2913 |  |
| Total    | 0.0127      | 0.0630 | 0.1799 | 3.4000e-004 | 0.0219        | 1.0400e-003  | 0.0230      | 5.8900e-003    | 9.5000e-004   | 6.8400e-003 | 0.0000   | 28.3539   | 28.3539   | 1.1100e-003 | 0.0000 | 28.3773 |  |

### 3.4 Building Construction - 2016

#### Unmitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |        |        |          |  |
| Off-Road | 0.4445  | 3.7201 | 2.4151 | 3.5000e-003 |               | 0.2567       | 0.2567     |                | 0.2412        | 0.2412      | 0.0000   | 316.0104  | 316.0104  | 0.0784 | 0.0000 | 317.6563 |  |
| Total    | 0.4445  | 3.7201 | 2.4151 | 3.5000e-003 |               | 0.2567       | 0.2567     |                | 0.2412        | 0.2412      | 0.0000   | 316.0104  | 316.0104  | 0.0784 | 0.0000 | 317.6563 |  |

### 3.4 Building Construction - 2016

#### Unmitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          |           | MT/yr     |             |        |          |  |
| Hauling  | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0266  | 0.2710 | 0.3493 | 6.5000e-004 | 0.0185        | 4.2900e-003  | 0.0228     | 5.2700e-003    | 3.9400e-003   | 9.2100e-003 | 0.0000   | 59.1583   | 59.1583   | 4.3000e-004 | 0.0000 | 59.1673  |  |
| Worker   | 0.0409  | 0.0601 | 0.6246 | 1.3700e-003 | 0.1117        | 9.5000e-004  | 0.1126     | 0.0297         | 8.7000e-004   | 0.0305      | 0.0000   | 104.6273  | 104.6273  | 5.6400e-003 | 0.0000 | 104.7457 |  |
| Total    | 0.0676  | 0.3311 | 0.9739 | 2.0200e-003 | 0.1302        | 5.2400e-003  | 0.1354     | 0.0349         | 4.8100e-003   | 0.0397      | 0.0000   | 163.7857  | 163.7857  | 6.0700e-003 | 0.0000 | 163.9130 |  |

#### Mitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          |           | MT/yr     |        |        |          |  |
| Off-Road | 0.4445  | 3.7201 | 2.4151 | 3.5000e-003 |               | 0.2567       | 0.2567     |                | 0.2412        | 0.2412      | 0.0000   | 316.0101  | 316.0101  | 0.0784 | 0.0000 | 317.6560 |  |
| Total    | 0.4445  | 3.7201 | 2.4151 | 3.5000e-003 |               | 0.2567       | 0.2567     |                | 0.2412        | 0.2412      | 0.0000   | 316.0101  | 316.0101  | 0.0784 | 0.0000 | 317.6560 |  |

### 3.4 Building Construction - 2016

#### Mitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |          |  |
| Hauling  | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0266  | 0.2710 | 0.3493 | 6.5000e-004 | 0.0185        | 4.2900e-003  | 0.0228     | 5.2700e-003    | 3.9400e-003   | 9.2100e-003 | 0.0000   | 59.1583   | 59.1583   | 4.3000e-004 | 0.0000 | 59.1673  |  |
| Worker   | 0.0409  | 0.0601 | 0.6246 | 1.3700e-003 | 0.1117        | 9.5000e-004  | 0.1126     | 0.0297         | 8.7000e-004   | 0.0305      | 0.0000   | 104.6273  | 104.6273  | 5.6400e-003 | 0.0000 | 104.7457 |  |
| Total    | 0.0676  | 0.3311 | 0.9739 | 2.0200e-003 | 0.1302        | 5.2400e-003  | 0.1354     | 0.0349         | 4.8100e-003   | 0.0397      | 0.0000   | 163.7857  | 163.7857  | 6.0700e-003 | 0.0000 | 163.9130 |  |

### 3.4 Building Construction - 2017

#### Unmitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |        |        |          |  |
| Off-Road | 0.4033  | 3.4327 | 2.3568 | 3.4900e-003 |               | 0.2316       | 0.2316     |                | 0.2175        | 0.2175      | 0.0000   | 311.3228  | 311.3228  | 0.0766 | 0.0000 | 312.9319 |  |
| Total    | 0.4033  | 3.4327 | 2.3568 | 3.4900e-003 |               | 0.2316       | 0.2316     |                | 0.2175        | 0.2175      | 0.0000   | 311.3228  | 311.3228  | 0.0766 | 0.0000 | 312.9319 |  |

### 3.4 Building Construction - 2017

#### Unmitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |          |  |
| Hauling  | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0243  | 0.2455 | 0.3298 | 6.5000e-004 | 0.0184        | 3.8100e-003  | 0.0222     | 5.2500e-003    | 3.5000e-003   | 8.7600e-003 | 0.0000   | 57.9766   | 57.9766   | 4.1000e-004 | 0.0000 | 57.9853  |  |
| Worker   | 0.0365  | 0.0540 | 0.5611 | 1.3700e-003 | 0.1113        | 9.1000e-004  | 0.1122     | 0.0296         | 8.4000e-004   | 0.0304      | 0.0000   | 100.2248  | 100.2248  | 5.1800e-003 | 0.0000 | 100.3336 |  |
| Total    | 0.0608  | 0.2995 | 0.8909 | 2.0200e-003 | 0.1297        | 4.7200e-003  | 0.1344     | 0.0348         | 4.3400e-003   | 0.0392      | 0.0000   | 158.2014  | 158.2014  | 5.5900e-003 | 0.0000 | 158.3189 |  |

#### Mitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |        |        |          |  |
| Off-Road | 0.4033  | 3.4327 | 2.3568 | 3.4900e-003 |               | 0.2316       | 0.2316     |                | 0.2175        | 0.2175      | 0.0000   | 311.3225  | 311.3225  | 0.0766 | 0.0000 | 312.9315 |  |
| Total    | 0.4033  | 3.4327 | 2.3568 | 3.4900e-003 |               | 0.2316       | 0.2316     |                | 0.2175        | 0.2175      | 0.0000   | 311.3225  | 311.3225  | 0.0766 | 0.0000 | 312.9315 |  |

### 3.4 Building Construction - 2017

#### Mitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          |           | MT/yr     |             |        |          |  |
| Hauling  | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0243  | 0.2455 | 0.3298 | 6.5000e-004 | 0.0184        | 3.8100e-003  | 0.0222     | 5.2500e-003    | 3.5000e-003   | 8.7600e-003 | 0.0000   | 57.9766   | 57.9766   | 4.1000e-004 | 0.0000 | 57.9853  |  |
| Worker   | 0.0365  | 0.0540 | 0.5611 | 1.3700e-003 | 0.1113        | 9.1000e-004  | 0.1122     | 0.0296         | 8.4000e-004   | 0.0304      | 0.0000   | 100.2248  | 100.2248  | 5.1800e-003 | 0.0000 | 100.3336 |  |
| Total    | 0.0608  | 0.2995 | 0.8909 | 2.0200e-003 | 0.1297        | 4.7200e-003  | 0.1344     | 0.0348         | 4.3400e-003   | 0.0392      | 0.0000   | 158.2014  | 158.2014  | 5.5900e-003 | 0.0000 | 158.3189 |  |

### 3.4 Building Construction - 2018

#### Unmitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          |           | MT/yr     |        |        |          |  |
| Off-Road | 0.1801  | 1.5701 | 1.1835 | 1.8100e-003 |               | 0.1009       | 0.1009     |                | 0.0948        | 0.0948      | 0.0000   | 159.8195  | 159.8195  | 0.0391 | 0.0000 | 160.6409 |  |
| Total    | 0.1801  | 1.5701 | 1.1835 | 1.8100e-003 |               | 0.1009       | 0.1009     |                | 0.0948        | 0.0948      | 0.0000   | 159.8195  | 159.8195  | 0.0391 | 0.0000 | 160.6409 |  |

### 3.4 Building Construction - 2018

#### Unmitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0118  | 0.1169 | 0.1640 | 3.4000e-004 | 9.5600e-003   | 1.8600e-003  | 0.0114     | 2.7300e-003    | 1.7100e-003   | 4.4400e-003 | 0.0000   | 29.5979   | 29.5979   | 2.1000e-004 | 0.0000 | 29.6024 |  |
| Worker   | 0.0170  | 0.0255 | 0.2638 | 7.1000e-004 | 0.0578        | 4.6000e-004  | 0.0582     | 0.0153         | 4.3000e-004   | 0.0158      | 0.0000   | 50.0974   | 50.0974   | 2.5000e-003 | 0.0000 | 50.1499 |  |
| Total    | 0.0288  | 0.1424 | 0.4278 | 1.0500e-003 | 0.0673        | 2.3200e-003  | 0.0696     | 0.0181         | 2.1400e-003   | 0.0202      | 0.0000   | 79.6953   | 79.6953   | 2.7100e-003 | 0.0000 | 79.7522 |  |

#### Mitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |        |        |          |  |
| Off-Road | 0.1801  | 1.5701 | 1.1835 | 1.8100e-003 |               | 0.1009       | 0.1009     |                | 0.0948        | 0.0948      | 0.0000   | 159.8193  | 159.8193  | 0.0391 | 0.0000 | 160.6407 |  |
| Total    | 0.1801  | 1.5701 | 1.1835 | 1.8100e-003 |               | 0.1009       | 0.1009     |                | 0.0948        | 0.0948      | 0.0000   | 159.8193  | 159.8193  | 0.0391 | 0.0000 | 160.6407 |  |

### 3.4 Building Construction - 2018

#### Mitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0118  | 0.1169 | 0.1640 | 3.4000e-004 | 9.5600e-003   | 1.8600e-003  | 0.0114     | 2.7300e-003    | 1.7100e-003   | 4.4400e-003 | 0.0000   | 29.5979   | 29.5979   | 2.1000e-004 | 0.0000 | 29.6024 |  |
| Worker   | 0.0170  | 0.0255 | 0.2638 | 7.1000e-004 | 0.0578        | 4.6000e-004  | 0.0582     | 0.0153         | 4.3000e-004   | 0.0158      | 0.0000   | 50.0974   | 50.0974   | 2.5000e-003 | 0.0000 | 50.1499 |  |
| Total    | 0.0288  | 0.1424 | 0.4278 | 1.0500e-003 | 0.0673        | 2.3200e-003  | 0.0696     | 0.0181         | 2.1400e-003   | 0.0202      | 0.0000   | 79.6953   | 79.6953   | 2.7100e-003 | 0.0000 | 79.7522 |  |

### 3.5 Architectural Coating - 2015

#### Unmitigated Construction On-Site

|                 | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2    | NBio- CO2 | Total CO2 | CH4    | N2O         | CO2e   |        |
|-----------------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|-------------|-----------|-----------|--------|-------------|--------|--------|
| Category        | tons/yr     |        |        |             |               |              |             |                |               |             | MT/yr       |           |           |        |             |        |        |
| Archit. Coating | 0.0965      |        |        |             |               |              | 0.0000      | 0.0000         |               | 0.0000      | 0.0000      | 0.0000    | 0.0000    | 0.0000 | 0.0000      | 0.0000 |        |
| Off-Road        | 8.9500e-003 | 0.0566 | 0.0418 | 7.0000e-005 |               |              | 4.8600e-003 | 4.8600e-003    |               | 4.8600e-003 | 4.8600e-003 | 0.0000    | 5.6172    | 5.6172 | 7.3000e-004 | 0.0000 | 5.6325 |
| Total           | 0.1054      | 0.0566 | 0.0418 | 7.0000e-005 |               |              | 4.8600e-003 | 4.8600e-003    |               | 4.8600e-003 | 4.8600e-003 | 0.0000    | 5.6172    | 5.6172 | 7.3000e-004 | 0.0000 | 5.6325 |

### 3.5 Architectural Coating - 2015

#### Unmitigated Construction Off-Site

|          | ROG         | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |  |
|----------|-------------|-------------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|--|
| Category | tons/yr     |             |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |        |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Worker   | 1.5700e-003 | 2.3000e-003 | 0.0239 | 5.0000e-005 | 3.8600e-005   | 3.0000e-005  | 3.9000e-003 | 1.0300e-003    | 3.0000e-005   | 1.0600e-003 | 0.0000   | 3.7476    | 3.7476    | 2.1000e-004 | 0.0000 | 3.7521 |  |
| Total    | 1.5700e-003 | 2.3000e-003 | 0.0239 | 5.0000e-005 | 3.8600e-003   | 3.0000e-005  | 3.9000e-003 | 1.0300e-003    | 3.0000e-005   | 1.0600e-003 | 0.0000   | 3.7476    | 3.7476    | 2.1000e-004 | 0.0000 | 3.7521 |  |

#### Mitigated Construction On-Site

|                 | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2    | NBio- CO2 | Total CO2 | CH4    | N2O         | CO2e   |        |
|-----------------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|-------------|-----------|-----------|--------|-------------|--------|--------|
| Category        | tons/yr     |        |        |             |               |              |             |                |               |             |             | MT/yr     |           |        |             |        |        |
| Archit. Coating | 0.0965      |        |        |             |               |              | 0.0000      | 0.0000         |               | 0.0000      | 0.0000      | 0.0000    | 0.0000    | 0.0000 | 0.0000      | 0.0000 |        |
| Off-Road        | 8.9500e-003 | 0.0566 | 0.0418 | 7.0000e-005 |               |              | 4.8600e-003 | 4.8600e-003    |               | 4.8600e-003 | 4.8600e-003 | 0.0000    | 5.6172    | 5.6172 | 7.3000e-004 | 0.0000 | 5.6325 |
| Total           | 0.1054      | 0.0566 | 0.0418 | 7.0000e-005 |               |              | 4.8600e-003 | 4.8600e-003    |               | 4.8600e-003 | 4.8600e-003 | 0.0000    | 5.6172    | 5.6172 | 7.3000e-004 | 0.0000 | 5.6325 |

### 3.5 Architectural Coating - 2015

#### Mitigated Construction Off-Site

|          | ROG         | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |  |
|----------|-------------|-------------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|--|
| Category | tons/yr     |             |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |        |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Worker   | 1.5700e-003 | 2.3000e-003 | 0.0239 | 5.0000e-005 | 3.8600e-005   | 3.0000e-005  | 3.9000e-003 | 1.0300e-003    | 3.0000e-005   | 1.0600e-003 | 0.0000   | 3.7476    | 3.7476    | 2.1000e-004 | 0.0000 | 3.7521 |  |
| Total    | 1.5700e-003 | 2.3000e-003 | 0.0239 | 5.0000e-005 | 3.8600e-003   | 3.0000e-005  | 3.9000e-003 | 1.0300e-003    | 3.0000e-005   | 1.0600e-003 | 0.0000   | 3.7476    | 3.7476    | 2.1000e-004 | 0.0000 | 3.7521 |  |

### 3.5 Architectural Coating - 2016

#### Unmitigated Construction On-Site

|                 | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4     | N2O         | CO2e   |         |
|-----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|---------|-------------|--------|---------|
| Category        | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |         |             |        |         |
| Archit. Coating | 0.5722  |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000  | 0.0000      | 0.0000 |         |
| Off-Road        | 0.0481  | 0.3096 | 0.2459 | 3.9000e-004 |               |              | 0.0257     | 0.0257         |               | 0.0257      | 0.0257   | 0.0000    | 33.3200   | 33.3200 | 3.9300e-003 | 0.0000 | 33.4025 |
| Total           | 0.6203  | 0.3096 | 0.2459 | 3.9000e-004 |               |              | 0.0257     | 0.0257         |               | 0.0257      | 0.0257   | 0.0000    | 33.3200   | 33.3200 | 3.9300e-003 | 0.0000 | 33.4025 |

### 3.5 Architectural Coating - 2016

#### Unmitigated Construction Off-Site

|          | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0000      | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 8.3900e-003 | 0.0123 | 0.1281 | 2.8000e-004 | 0.0229        | 2.0000e-004  | 0.0231     | 6.0800e-003    | 1.8000e-004   | 6.2600e-003 | 0.0000   | 21.4620   | 21.4620   | 1.1600e-003 | 0.0000 | 21.4863 |  |
| Total    | 8.3900e-003 | 0.0123 | 0.1281 | 2.8000e-004 | 0.0229        | 2.0000e-004  | 0.0231     | 6.0800e-003    | 1.8000e-004   | 6.2600e-003 | 0.0000   | 21.4620   | 21.4620   | 1.1600e-003 | 0.0000 | 21.4863 |  |

#### Mitigated Construction On-Site

|                 | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4     | N2O         | CO2e   |         |
|-----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|---------|-------------|--------|---------|
| Category        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |         |             |        |         |
| Archit. Coating | 0.5722  |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000  | 0.0000      | 0.0000 |         |
| Off-Road        | 0.0481  | 0.3096 | 0.2459 | 3.9000e-004 |               |              | 0.0257     | 0.0257         |               | 0.0257      | 0.0257   | 0.0000    | 33.3199   | 33.3199 | 3.9300e-003 | 0.0000 | 33.4024 |
| Total           | 0.6203  | 0.3096 | 0.2459 | 3.9000e-004 |               |              | 0.0257     | 0.0257         |               | 0.0257      | 0.0257   | 0.0000    | 33.3199   | 33.3199 | 3.9300e-003 | 0.0000 | 33.4024 |

### 3.5 Architectural Coating - 2016

#### Mitigated Construction Off-Site

|          | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0000      | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 8.3900e-003 | 0.0123 | 0.1281 | 2.8000e-004 | 0.0229        | 2.0000e-004  | 0.0231     | 6.0800e-003    | 1.8000e-004   | 6.2600e-003 | 0.0000   | 21.4620   | 21.4620   | 1.1600e-003 | 0.0000 | 21.4863 |  |
| Total    | 8.3900e-003 | 0.0123 | 0.1281 | 2.8000e-004 | 0.0229        | 2.0000e-004  | 0.0231     | 6.0800e-003    | 1.8000e-004   | 6.2600e-003 | 0.0000   | 21.4620   | 21.4620   | 1.1600e-003 | 0.0000 | 21.4863 |  |

### 3.5 Architectural Coating - 2017

#### Unmitigated Construction On-Site

|                 | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|-----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Archit. Coating | 0.5700  |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Off-Road        | 0.0432  | 0.2841 | 0.2429 | 3.9000e-004 |               | 0.0225       | 0.0225     |                | 0.0225        | 0.0225      | 0.0000   | 33.1923   | 33.1923   | 3.5000e-003 | 0.0000 | 33.2659 |  |
| Total           | 0.6132  | 0.2841 | 0.2429 | 3.9000e-004 |               | 0.0225       | 0.0225     |                | 0.0225        | 0.0225      | 0.0000   | 33.1923   | 33.1923   | 3.5000e-003 | 0.0000 | 33.2659 |  |

### 3.5 Architectural Coating - 2017

#### Unmitigated Construction Off-Site

|          | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0000      | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 7.4900e-003 | 0.0111 | 0.1151 | 2.8000e-004 | 0.0228        | 1.9000e-004  | 0.0230     | 6.0600e-003    | 1.7000e-004   | 6.2300e-003 | 0.0000   | 20.5589   | 20.5589   | 1.0600e-003 | 0.0000 | 20.5813 |  |
| Total    | 7.4900e-003 | 0.0111 | 0.1151 | 2.8000e-004 | 0.0228        | 1.9000e-004  | 0.0230     | 6.0600e-003    | 1.7000e-004   | 6.2300e-003 | 0.0000   | 20.5589   | 20.5589   | 1.0600e-003 | 0.0000 | 20.5813 |  |

#### Mitigated Construction On-Site

|                 | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|-----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Archit. Coating | 0.5700  |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Off-Road        | 0.0432  | 0.2841 | 0.2429 | 3.9000e-004 |               | 0.0225       | 0.0225     |                | 0.0225        | 0.0225      | 0.0000   | 33.1923   | 33.1923   | 3.5000e-003 | 0.0000 | 33.2659 |  |
| Total           | 0.6132  | 0.2841 | 0.2429 | 3.9000e-004 |               | 0.0225       | 0.0225     |                | 0.0225        | 0.0225      | 0.0000   | 33.1923   | 33.1923   | 3.5000e-003 | 0.0000 | 33.2659 |  |

### 3.5 Architectural Coating - 2017

#### Mitigated Construction Off-Site

|          | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0000      | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 7.4900e-003 | 0.0111 | 0.1151 | 2.8000e-004 | 0.0228        | 1.9000e-004  | 0.0230     | 6.0600e-003    | 1.7000e-004   | 6.2300e-003 | 0.0000   | 20.5589   | 20.5589   | 1.0600e-003 | 0.0000 | 20.5813 |  |
| Total    | 7.4900e-003 | 0.0111 | 0.1151 | 2.8000e-004 | 0.0228        | 1.9000e-004  | 0.0230     | 6.0600e-003    | 1.7000e-004   | 6.2300e-003 | 0.0000   | 20.5589   | 20.5589   | 1.0600e-003 | 0.0000 | 20.5813 |  |

### 3.5 Architectural Coating - 2018

#### Unmitigated Construction On-Site

|                 | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4     | N2O         | CO2e   |         |
|-----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|---------|-------------|--------|---------|
| Category        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |         |             |        |         |
| Archit. Coating | 0.2960  |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000  | 0.0000      | 0.0000 |         |
| Off-Road        | 0.0202  | 0.1354 | 0.1252 | 2.0000e-004 |               |              | 0.0102     | 0.0102         |               | 0.0102      | 0.0102   | 0.0000    | 17.2345   | 17.2345 | 1.6400e-003 | 0.0000 | 17.2689 |
| Total           | 0.3161  | 0.1354 | 0.1252 | 2.0000e-004 |               |              | 0.0102     | 0.0102         |               | 0.0102      | 0.0102   | 0.0000    | 17.2345   | 17.2345 | 1.6400e-003 | 0.0000 | 17.2689 |

### 3.5 Architectural Coating - 2018

#### Unmitigated Construction Off-Site

|          | ROG         | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|-------------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |             |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 3.4900e-003 | 5.2200e-003 | 0.0541 | 1.5000e-004 | 0.0119        | 9.0000e-005  | 0.0119     | 3.1500e-003    | 9.0000e-005   | 3.2300e-003 | 0.0000   | 10.2764   | 10.2764   | 5.1000e-004 | 0.0000 | 10.2872 |  |
| Total    | 3.4900e-003 | 5.2200e-003 | 0.0541 | 1.5000e-004 | 0.0119        | 9.0000e-005  | 0.0119     | 3.1500e-003    | 9.0000e-005   | 3.2300e-003 | 0.0000   | 10.2764   | 10.2764   | 5.1000e-004 | 0.0000 | 10.2872 |  |

#### Mitigated Construction On-Site

|                 | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4     | N2O         | CO2e   |         |
|-----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|---------|-------------|--------|---------|
| Category        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |         |             |        |         |
| Archit. Coating | 0.2960  |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000  | 0.0000      | 0.0000 |         |
| Off-Road        | 0.0202  | 0.1354 | 0.1252 | 2.0000e-004 |               |              | 0.0102     | 0.0102         |               | 0.0102      | 0.0102   | 0.0000    | 17.2345   | 17.2345 | 1.6400e-003 | 0.0000 | 17.2689 |
| Total           | 0.3161  | 0.1354 | 0.1252 | 2.0000e-004 |               |              | 0.0102     | 0.0102         |               | 0.0102      | 0.0102   | 0.0000    | 17.2345   | 17.2345 | 1.6400e-003 | 0.0000 | 17.2689 |

### 3.5 Architectural Coating - 2018

#### Mitigated Construction Off-Site

|          | ROG         | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|-------------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |             |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 3.4900e-003 | 5.2200e-003 | 0.0541 | 1.5000e-004 | 0.0119        | 9.0000e-005  | 0.0119     | 3.1500e-003    | 9.0000e-005   | 3.2300e-003 | 0.0000   | 10.2764   | 10.2764   | 5.1000e-004 | 0.0000 | 10.2872 |  |
| Total    | 3.4900e-003 | 5.2200e-003 | 0.0541 | 1.5000e-004 | 0.0119        | 9.0000e-005  | 0.0119     | 3.1500e-003    | 9.0000e-005   | 3.2300e-003 | 0.0000   | 10.2764   | 10.2764   | 5.1000e-004 | 0.0000 | 10.2872 |  |

### 3.6 Paving - 2018

#### Unmitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |
|----------|---------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|
| Category | tons/yr |        |        |             |               |              |             |                |               |             | MT/yr    |           |           |             |        |         |
| Off-Road | 0.0121  | 0.1287 | 0.1087 | 1.7000e-004 |               | 7.0400e-003  | 7.0400e-003 |                | 6.4800e-003   | 6.4800e-003 | 0.0000   | 15.2766   | 15.2766   | 4.7600e-003 | 0.0000 | 15.3764 |
| Paving   | 0.0000  |        |        |             |               | 0.0000       | 0.0000      |                | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |
| Total    | 0.0121  | 0.1287 | 0.1087 | 1.7000e-004 |               | 7.0400e-003  | 7.0400e-003 |                | 6.4800e-003   | 6.4800e-003 | 0.0000   | 15.2766   | 15.2766   | 4.7600e-003 | 0.0000 | 15.3764 |

### 3.6 Paving - 2018

#### Unmitigated Construction Off-Site

|          | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |  |
|----------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|--|
| Category | tons/yr     |             |             |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |        |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000      | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000      | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Worker   | 3.6000e-004 | 5.4000e-004 | 5.6400e-003 | 2.0000e-005 | 1.2300e-005   | 1.0000e-003  | 1.2400e-005 | 3.3000e-004    | 1.0000e-005   | 3.4000e-004 | 0.0000   | 1.0705    | 1.0705    | 5.0000e-005 | 0.0000 | 1.0716 |  |
| Total    | 3.6000e-004 | 5.4000e-004 | 5.6400e-003 | 2.0000e-005 | 1.2300e-003   | 1.0000e-005  | 1.2400e-003 | 3.3000e-004    | 1.0000e-005   | 3.4000e-004 | 0.0000   | 1.0705    | 1.0705    | 5.0000e-005 | 0.0000 | 1.0716 |  |

#### Mitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|---------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr |        |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |         |  |
| Off-Road | 0.0121  | 0.1287 | 0.1087 | 1.7000e-004 |               | 7.0400e-003  | 7.0400e-003 |                | 6.4800e-003   | 6.4800e-003 | 0.0000   | 15.2765   | 15.2765   | 4.7600e-003 | 0.0000 | 15.3764 |  |
| Paving   | 0.0000  |        |        |             |               | 0.0000       | 0.0000      |                | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Total    | 0.0121  | 0.1287 | 0.1087 | 1.7000e-004 |               | 7.0400e-003  | 7.0400e-003 |                | 6.4800e-003   | 6.4800e-003 | 0.0000   | 15.2765   | 15.2765   | 4.7600e-003 | 0.0000 | 15.3764 |  |

### 3.6 Paving - 2018

#### Mitigated Construction Off-Site

|          | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |  |
|----------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|--|
| Category | tons/yr     |             |             |             |               |              |             |                |               |             |          |           | MT/yr     |             |        |        |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000      | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000      | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Worker   | 3.6000e-004 | 5.4000e-004 | 5.6400e-003 | 2.0000e-005 | 1.2300e-005   | 1.0000e-005  | 1.2400e-003 | 3.3000e-004    | 1.0000e-005   | 3.4000e-004 | 0.0000   | 1.0705    | 1.0705    | 5.0000e-005 | 0.0000 | 1.0716 |  |
| Total    | 3.6000e-004 | 5.4000e-004 | 5.6400e-003 | 2.0000e-005 | 1.2300e-003   | 1.0000e-005  | 1.2400e-003 | 3.3000e-004    | 1.0000e-005   | 3.4000e-004 | 0.0000   | 1.0705    | 1.0705    | 5.0000e-005 | 0.0000 | 1.0716 |  |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

|             | ROG     | NOx    | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e      |
|-------------|---------|--------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|-----------|
| Category    | tons/yr |        |         |        |               |              |            |                |               |             | MT/yr    |           |           |        |        |           |
| Mitigated   | 1.2209  | 3.9081 | 14.5599 | 0.0394 | 2.6903        | 0.0564       | 2.7467     | 0.7199         | 0.0519        | 0.7719      | 0.0000   | 2,957.189 | 2,957.189 | 0.1111 | 0.0000 | 2,959.521 |
| Unmitigated | 1.2209  | 3.9081 | 14.5599 | 0.0394 | 2.6903        | 0.0564       | 2.7467     | 0.7199         | 0.0519        | 0.7719      | 0.0000   | 2,957.189 | 2,957.189 | 0.1111 | 0.0000 | 2,959.521 |

## 4.2 Trip Summary Information

| Land Use              | Average Daily Trip Rate |          |          | Unmitigated | Mitigated  |
|-----------------------|-------------------------|----------|----------|-------------|------------|
|                       | Weekday                 | Saturday | Sunday   | Annual VMT  | Annual VMT |
| Single Family Housing | 2,086.26                | 2,197.44 | 1911.86  | 7,098,206   | 7,098,206  |
| Total                 | 2,086.26                | 2,197.44 | 1,911.86 | 7,098,206   | 7,098,206  |

## 4.3 Trip Type Information

| Land Use              | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                       | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Single Family Housing | 14.70      | 5.90       | 8.70        | 40.20      | 19.20      | 40.60       | 86             | 11       | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.511172 | 0.060004 | 0.180590 | 0.138995 | 0.042398 | 0.006681 | 0.016070 | 0.032568 | 0.001938 | 0.002493 | 0.004370 | 0.000586 | 0.002135 |

## 5.0 Energy Detail

### 5.1 Fleet Mix

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

|                         | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e     |  |
|-------------------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|--|
| Category                | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |             |          |  |
| Electricity Mitigated   |         |        |        |             |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      | 0.0000   | 442.2847  | 442.2847  | 0.0203      | 4.2100e-003 | 444.0156 |  |
| Electricity Unmitigated |         |        |        |             |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      | 0.0000   | 442.2847  | 442.2847  | 0.0203      | 4.2100e-003 | 444.0156 |  |
| NaturalGas Mitigated    | 0.0340  | 0.2901 | 0.1235 | 1.8500e-003 |               | 0.0235       | 0.0235     |                | 0.0235        | 0.0235      | 0.0000   | 336.0107  | 336.0107  | 6.4400e-003 | 6.1600e-003 | 338.0556 |  |
| NaturalGas Unmitigated  | 0.0340  | 0.2901 | 0.1235 | 1.8500e-003 |               | 0.0235       | 0.0235     |                | 0.0235        | 0.0235      | 0.0000   | 336.0107  | 336.0107  | 6.4400e-003 | 6.1600e-003 | 338.0556 |  |

## 5.2 Energy by Land Use - NaturalGas

### Unmitigated

|                       | NaturalGas Use | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e     |  |
|-----------------------|----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|--|
| Land Use              | kBTU/yr        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |             |          |  |
| Single Family Housing | 6.2966e+006    | 0.0340  | 0.2901 | 0.1235 | 1.8500e-003 |               | 0.0235       | 0.0235     |                | 0.0235        | 0.0235      | 0.0000   | 336.0107  | 336.0107  | 6.4400e-003 | 6.1600e-003 | 338.0556 |  |
| Total                 |                | 0.0340  | 0.2901 | 0.1235 | 1.8500e-003 |               | 0.0235       | 0.0235     |                | 0.0235        | 0.0235      | 0.0000   | 336.0107  | 336.0107  | 6.4400e-003 | 6.1600e-003 | 338.0556 |  |

## 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        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |             |          |  |
| Single Family Housing | 6.2966e+006    | 0.0340  | 0.2901 | 0.1235 | 1.8500e-003 |               | 0.0235       | 0.0235     |                | 0.0235        | 0.0235      | 0.0000   | 336.0107  | 336.0107  | 6.4400e-003 | 6.1600e-003 | 338.0556 |  |
| Total                 |                | 0.0340  | 0.2901 | 0.1235 | 1.8500e-003 |               | 0.0235       | 0.0235     |                | 0.0235        | 0.0235      | 0.0000   | 336.0107  | 336.0107  | 6.4400e-003 | 6.1600e-003 | 338.0556 |  |

## 5.3 Energy by Land Use - Electricity

### Unmitigated

|                       | Electricity Use | Total CO2 | CH4    | N2O         | CO2e     |
|-----------------------|-----------------|-----------|--------|-------------|----------|
| Land Use              | kWh/yr          | MT/yr     |        |             |          |
| Single Family Housing | 1.54555e+006    | 442.2847  | 0.0203 | 4.2100e-003 | 444.0156 |
| Total                 |                 | 442.2847  | 0.0203 | 4.2100e-003 | 444.0156 |

## 5.3 Energy by Land Use - Electricity

### Mitigated

|                       | Electricity Use | Total CO2       | CH4           | N2O                | CO2e            |
|-----------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use              | kWh/yr          | MT/yr           |               |                    |                 |
| Single Family Housing | 1.54555e+006    | 442.2847        | 0.0203        | 4.2100e-003        | 444.0156        |
| <b>Total</b>          |                 | <b>442.2847</b> | <b>0.0203</b> | <b>4.2100e-003</b> | <b>444.0156</b> |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

Use only Natural Gas Hearths

|             | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4     | N2O         | CO2e        |         |
|-------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|---------|-------------|-------------|---------|
| Category    | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |         |             |             |         |
| Mitigated   | 1.6460  | 0.0263 | 2.2643 | 1.2000e-004 |               |              | 0.0157     | 0.0157         |               | 0.0156      | 0.0156   | 0.0000    | 50.7872   | 50.7872 | 4.5400e-003 | 8.6000e-004 | 51.1504 |
| Unmitigated | 2.3552  | 0.0444 | 3.6338 | 2.3000e-003 |               |              | 0.2205     | 0.2205         |               | 0.2205      | 0.2205   | 23.1558   | 48.1697   | 71.3255 | 0.0727      | 1.5700e-003 | 73.3393 |

## 6.2 Area by SubCategory

### Unmitigated

|                       | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2       | NBio- CO2      | Total CO2      | CH4           | N2O                | CO2e           |
|-----------------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|----------------|----------------|---------------|--------------------|----------------|
| SubCategory           | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr          |                |                |               |                    |                |
| Architectural Coating | 0.1535        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000         | 0.0000        | 0.0000             | 0.0000         |
| Consumer Products     | 1.4179        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000         | 0.0000        | 0.0000             | 0.0000         |
| Hearth                | 0.7141        | 0.0181        | 1.3697        | 2.1800e-003        |               | 0.2082        | 0.2082        |                | 0.2081        | 0.2081        | 23.1558        | 44.4974        | 67.6532        | 0.0691        | 1.5700e-003        | 69.5905        |
| Landscaping           | 0.0698        | 0.0263        | 2.2641        | 1.2000e-004        |               | 0.0124        | 0.0124        |                | 0.0124        | 0.0124        | 0.0000         | 3.6723         | 3.6723         | 3.6400e-003   | 0.0000             | 3.7488         |
| <b>Total</b>          | <b>2.3552</b> | <b>0.0444</b> | <b>3.6338</b> | <b>2.3000e-003</b> |               | <b>0.2205</b> | <b>0.2205</b> |                | <b>0.2205</b> | <b>0.2205</b> | <b>23.1558</b> | <b>48.1697</b> | <b>71.3255</b> | <b>0.0727</b> | <b>1.5700e-003</b> | <b>73.3393</b> |

## 6.2 Area by SubCategory

### Mitigated

|                       | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10 | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2     | Total CO2      | CH4            | N2O                | CO2e               |                |
|-----------------------|---------------|---------------|---------------|--------------------|---------------|--------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|----------------|--------------------|--------------------|----------------|
| SubCategory           | tons/yr       |               |               |                    |               |              |               |                |               |               | MT/yr         |               |                |                |                    |                    |                |
| Architectural Coating | 0.1535        |               |               |                    |               |              | 0.0000        | 0.0000         |               | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             |                |
| Consumer Products     | 1.4179        |               |               |                    |               |              | 0.0000        | 0.0000         |               | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             |                |
| Hearth                | 4.7600e-003   | 0.0000        | 2.6000e-004   | 0.0000             |               |              | 3.2900e-003   | 3.2900e-003    |               | 3.2500e-003   | 3.2500e-003   | 0.0000        | 47.1149        | 47.1149        | 9.0000e-004        | 8.6000e-004        | 47.4016        |
| Landscaping           | 0.0698        | 0.0263        | 2.2641        | 1.2000e-004        |               |              | 0.0124        | 0.0124         |               | 0.0124        | 0.0124        | 0.0000        | 3.6723         | 3.6723         | 3.6400e-003        | 0.0000             | 3.7488         |
| <b>Total</b>          | <b>1.6460</b> | <b>0.0263</b> | <b>2.2643</b> | <b>1.2000e-004</b> |               |              | <b>0.0157</b> | <b>0.0157</b>  |               | <b>0.0156</b> | <b>0.0156</b> | <b>0.0000</b> | <b>50.7872</b> | <b>50.7872</b> | <b>4.5400e-003</b> | <b>8.6000e-004</b> | <b>51.1504</b> |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

|             | Total CO2 | CH4    | N2O    | CO2e    |
|-------------|-----------|--------|--------|---------|
| Category    | MT/yr     |        |        |         |
| Mitigated   | 85.9002   | 0.4665 | 0.0117 | 99.3186 |
| Unmitigated | 85.9002   | 0.4666 | 0.0117 | 99.3258 |

## 7.2 Water by Land Use

### Unmitigated

|                          | Indoor/Out<br>door Use | Total CO2      | CH4           | N2O           | CO2e           |
|--------------------------|------------------------|----------------|---------------|---------------|----------------|
| Land Use                 | Mgal                   | MT/yr          |               |               |                |
| Single Family<br>Housing | 14.2036 /<br>8.95443   | 85.9002        | 0.4666        | 0.0117        | 99.3258        |
| <b>Total</b>             |                        | <b>85.9002</b> | <b>0.4666</b> | <b>0.0117</b> | <b>99.3258</b> |

### Mitigated

|                          | Indoor/Out<br>door Use | Total CO2      | CH4           | N2O           | CO2e           |
|--------------------------|------------------------|----------------|---------------|---------------|----------------|
| Land Use                 | Mgal                   | MT/yr          |               |               |                |
| Single Family<br>Housing | 14.2036 /<br>8.95443   | 85.9002        | 0.4665        | 0.0117        | 99.3186        |
| <b>Total</b>             |                        | <b>85.9002</b> | <b>0.4665</b> | <b>0.0117</b> | <b>99.3186</b> |

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

Category/Year

|             | Total CO2 | CH4    | N2O    | CO2e     |
|-------------|-----------|--------|--------|----------|
|             | MT/yr     |        |        |          |
| Mitigated   | 51.8500   | 3.0643 | 0.0000 | 116.1992 |
| Unmitigated | 51.8500   | 3.0643 | 0.0000 | 116.1992 |

**8.2 Waste by Land Use**Unmitigated

|                       | Waste Disposed | Total CO2 | CH4    | N2O    | CO2e     |
|-----------------------|----------------|-----------|--------|--------|----------|
| Land Use              | tons           | MT/yr     |        |        |          |
| Single Family Housing | 255.43         | 51.8500   | 3.0643 | 0.0000 | 116.1992 |
| Total                 |                | 51.8500   | 3.0643 | 0.0000 | 116.1992 |

## 8.2 Waste by Land Use

### Mitigated

|                       | Waste Disposed | Total CO2      | CH4           | N2O           | CO2e            |
|-----------------------|----------------|----------------|---------------|---------------|-----------------|
| Land Use              | tons           | MT/yr          |               |               |                 |
| Single Family Housing | 255.43         | 51.8500        | 3.0643        | 0.0000        | 116.1992        |
| <b>Total</b>          |                | <b>51.8500</b> | <b>3.0643</b> | <b>0.0000</b> | <b>116.1992</b> |

## 9.0 Operational Offroad

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

## 10.0 Vegetation

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**Option 1 Phase 2**  
**Orange County, Annual**

## 1.0 Project Characteristics

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### 1.1 Land Usage

| Land Uses             | Size   | Metric        | Lot Acreage | Floor Surface Area | Population |
|-----------------------|--------|---------------|-------------|--------------------|------------|
| Single Family Housing | 160.00 | Dwelling Unit | 51.95       | 288,000.00         | 458        |

### 1.2 Other Project Characteristics

|                            |                            |                            |       |                            |       |
|----------------------------|----------------------------|----------------------------|-------|----------------------------|-------|
| Urbanization               | Urban                      | Wind Speed (m/s)           | 2.2   | Precipitation Freq (Days)  | 30    |
| Climate Zone               | 8                          |                            |       | Operational Year           | 2020  |
| Utility Company            | Southern California Edison |                            |       |                            |       |
| CO2 Intensity<br>(lb/MWhr) | 630.89                     | CH4 Intensity<br>(lb/MWhr) | 0.029 | N2O Intensity<br>(lb/MWhr) | 0.006 |

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

Project Characteristics -

Land Use -

Construction Phase - Construction: 2 years, Paving 3 weeks

Off-road Equipment - Construction: 1 crane, 3 forklifts, 1 gen set, 3 loader/backhoes, 1 loader

Off-road Equipment - Paving: 2 pavers, 2 paving equipment, 2 rollers

Construction Off-road Equipment Mitigation -

Area Mitigation -

| Table Name                | Column Name     | Default Value | New Value  |
|---------------------------|-----------------|---------------|------------|
| tblConstructionPhase      | NumDays         | 75.00         | 500.00     |
| tblConstructionPhase      | NumDays         | 1,110.00      | 500.00     |
| tblConstructionPhase      | NumDays         | 75.00         | 15.00      |
| tblConstructionPhase      | PhaseEndDate    | 10/29/2021    | 11/29/2019 |
| tblConstructionPhase      | PhaseEndDate    | 12/20/2019    | 1/21/2020  |
| tblConstructionPhase      | PhaseStartDate  | 11/30/2019    | 1/1/2018   |
| tblConstructionPhase      | PhaseStartDate  | 11/30/2019    | 1/1/2020   |
| tblProjectCharacteristics | OperationalYear | 2014          | 2020       |

## 2.0 Emissions Summary

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## 2.1 Overall Construction

### Unmitigated Construction

|       | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e     |  |
|-------|---------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|----------|--|
| Year  | tons/yr |        |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |          |  |
| 2018  | 1.0188  | 3.5027 | 3.1673 | 5.5500e-003 | 0.1139        | 0.2179       | 0.3319      | 0.0305         | 0.2060        | 0.2365      | 0.0000   | 467.9956  | 467.9956  | 0.0829      | 0.0000 | 469.7368 |  |
| 2019  | 0.8886  | 2.8990 | 2.8143 | 5.0900e-003 | 0.1043        | 0.1718       | 0.2761      | 0.0280         | 0.1624        | 0.1903      | 0.0000   | 422.4594  | 422.4594  | 0.0743      | 0.0000 | 424.0191 |  |
| 2020  | 0.0103  | 0.1038 | 0.1120 | 1.8000e-004 | 1.2400e-003   | 5.5500e-003  | 6.7900e-003 | 3.3000e-004    | 5.1100e-003   | 5.4400e-003 | 0.0000   | 15.6594   | 15.6594   | 4.8000e-003 | 0.0000 | 15.7602  |  |
| Total | 1.9176  | 6.5055 | 6.0936 | 0.0108      | 0.2195        | 0.3952       | 0.6148      | 0.0588         | 0.3735        | 0.4323      | 0.0000   | 906.1144  | 906.1144  | 0.1620      | 0.0000 | 909.5161 |  |

### Mitigated Construction

|       | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e     |  |
|-------|---------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|----------|--|
| Year  | tons/yr |        |        |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |          |  |
| 2018  | 1.0188  | 3.5027 | 3.1673 | 5.5500e-003 | 0.1139        | 0.2179       | 0.3319      | 0.0305         | 0.2060        | 0.2365      | 0.0000   | 467.9952  | 467.9952  | 0.0829      | 0.0000 | 469.7364 |  |
| 2019  | 0.8886  | 2.8990 | 2.8143 | 5.0900e-003 | 0.1043        | 0.1718       | 0.2761      | 0.0280         | 0.1624        | 0.1903      | 0.0000   | 422.4590  | 422.4590  | 0.0743      | 0.0000 | 424.0187 |  |
| 2020  | 0.0103  | 0.1038 | 0.1120 | 1.8000e-004 | 1.2400e-003   | 5.5500e-003  | 6.7900e-003 | 3.3000e-004    | 5.1100e-003   | 5.4400e-003 | 0.0000   | 15.6594   | 15.6594   | 4.8000e-003 | 0.0000 | 15.7602  |  |
| Total | 1.9176  | 6.5055 | 6.0936 | 0.0108      | 0.2195        | 0.3952       | 0.6148      | 0.0588         | 0.3735        | 0.4323      | 0.0000   | 906.1136  | 906.1136  | 0.1620      | 0.0000 | 909.5153 |  |

|                   | ROG  | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 0.00          | 0.00         | 0.00       | 0.00           | 0.00          | 0.00        | 0.00     | 0.00     | 0.00      | 0.00 | 0.00 | 0.00 |

## 2.2 Overall Operational

### Unmitigated Operational

|              | ROG           | NOx           | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2       | NBio- CO2         | Total CO2         | CH4           | N2O           | CO2e              |
|--------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-------------------|-------------------|---------------|---------------|-------------------|
| Category     | tons/yr       |               |                |               |               |               |               |                |               |               | MT/yr          |                   |                   |               |               |                   |
| Area         | 1.7278        | 0.0324        | 2.6608         | 1.6900e-003   |               | 0.1619        | 0.1619        |                | 0.1619        | 0.1619        | 16.9951        | 35.3539           | 52.3490           | 0.0533        | 1.1500e-003   | 53.8261           |
| Energy       | 0.0249        | 0.2130        | 0.0906         | 1.3600e-003   |               | 0.0172        | 0.0172        |                | 0.0172        | 0.0172        | 0.0000         | 571.2260          | 571.2260          | 0.0197        | 7.6100e-003   | 573.9972          |
| Mobile       | 0.7233        | 1.8047        | 8.2757         | 0.0272        | 1.9684        | 0.0279        | 1.9962        | 0.5260         | 0.0257        | 0.5517        | 0.0000         | 1,878.1323        | 1,878.1323        | 0.0683        | 0.0000        | 1,879.5669        |
| Waste        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 38.1176        | 0.0000            | 38.1176           | 2.2527        | 0.0000        | 85.4241           |
| Water        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 3.3073         | 59.7387           | 63.0460           | 0.3424        | 8.5900e-003   | 72.8996           |
| <b>Total</b> | <b>2.4760</b> | <b>2.0501</b> | <b>11.0271</b> | <b>0.0302</b> | <b>1.9684</b> | <b>0.2070</b> | <b>2.1753</b> | <b>0.5260</b>  | <b>0.2048</b> | <b>0.7308</b> | <b>58.4200</b> | <b>2,544.4510</b> | <b>2,602.8709</b> | <b>2.7364</b> | <b>0.0174</b> | <b>2,665.7139</b> |

## 2.2 Overall Operational

### Mitigated Operational

|              | ROG           | NOx           | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2       | NBio- CO2         | Total CO2         | CH4           | N2O           | CO2e              |  |
|--------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-------------------|-------------------|---------------|---------------|-------------------|--|
| Category     | tons/yr       |               |                |               |               |               |               |                |               |               |                | MT/yr             |                   |               |               |                   |  |
| Area         | 1.2072        | 0.0192        | 1.6557         | 9.0000e-005   |               | 0.0115        | 0.0115        |                | 0.0115        | 0.0115        | 0.0000         | 37.2750           | 37.2750           | 3.2900e-003   | 6.3000e-004   | 37.5407           |  |
| Energy       | 0.0249        | 0.2130        | 0.0906         | 1.3600e-003   |               | 0.0172        | 0.0172        |                | 0.0172        | 0.0172        | 0.0000         | 571.2260          | 571.2260          | 0.0197        | 7.6100e-003   | 573.9972          |  |
| Mobile       | 0.7233        | 1.8047        | 8.2757         | 0.0272        | 1.9684        | 0.0279        | 1.9962        | 0.5260         | 0.0257        | 0.5517        | 0.0000         | 1,878.1323        | 1,878.1323        | 0.0683        | 0.0000        | 1,879.5669        |  |
| Waste        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 38.1176        | 0.0000            | 38.1176           | 2.2527        | 0.0000        | 85.4241           |  |
| Water        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 3.3073         | 59.7387           | 63.0460           | 0.3424        | 8.5800e-003   | 72.8944           |  |
| <b>Total</b> | <b>1.9554</b> | <b>2.0368</b> | <b>10.0220</b> | <b>0.0286</b> | <b>1.9684</b> | <b>0.0566</b> | <b>2.0250</b> | <b>0.5260</b>  | <b>0.0544</b> | <b>0.5804</b> | <b>41.4249</b> | <b>2,546.3721</b> | <b>2,587.7970</b> | <b>2.6863</b> | <b>0.0168</b> | <b>2,649.4232</b> |  |

|                   | ROG   | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|-------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 21.03 | 0.65 | 9.11 | 5.30 | 0.00          | 72.65        | 6.91       | 0.00           | 73.43         | 20.58       | 29.09    | -0.08    | 0.58      | 1.83 | 3.05 | 0.61 |

## 3.0 Construction Detail

### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date   | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|------------|---------------|----------|-------------------|
| 1            | Building Construction | Building Construction | 1/1/2018   | 11/29/2019 | 5             | 500      |                   |
| 2            | Architectural Coating | Architectural Coating | 1/1/2018   | 11/29/2019 | 5             | 500      |                   |
| 3            | Paving                | Paving                | 1/1/2020   | 1/21/2020  | 5             | 15       |                   |

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

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

**Acres of Paving: 0**

**Residential Indoor: 583,200; Residential Outdoor: 194,400; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)**

### OffRoad Equipment

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Building Construction | Cranes                    | 1      | 7.00        | 226         | 0.29        |
| Building Construction | Forklifts                 | 3      | 8.00        | 89          | 0.20        |
| Building Construction | Generator Sets            | 1      | 8.00        | 84          | 0.74        |
| Building Construction | Tractors/Loaders/Backhoes | 3      | 7.00        | 97          | 0.37        |
| Building Construction | Welders                   | 1      | 8.00        | 46          | 0.45        |
| Architectural Coating | Air Compressors           | 1      | 6.00        | 78          | 0.48        |
| Paving                | Pavers                    | 2      | 8.00        | 125         | 0.42        |
| Paving                | Paving Equipment          | 2      | 8.00        | 130         | 0.36        |
| Paving                | Rollers                   | 2      | 8.00        | 80          | 0.38        |

### Trips and VMT

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Building Construction | 9                       | 58.00              | 17.00              | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Architectural Coating | 1                       | 12.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving                | 6                       | 15.00              | 0.00               | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### **3.1 Mitigation Measures Construction**

Water Exposed Area

### 3.2 Building Construction - 2018

#### Unmitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|
| Category | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |        |        |          |
| Off-Road | 0.3483  | 3.0355 | 2.2880 | 3.5000e-003 |               | 0.1950       | 0.1950     |                | 0.1833        | 0.1833      | 0.0000   | 308.9844  | 308.9844  | 0.0756 | 0.0000 | 310.5723 |
| Total    | 0.3483  | 3.0355 | 2.2880 | 3.5000e-003 |               | 0.1950       | 0.1950     |                | 0.1833        | 0.1833      | 0.0000   | 308.9844  | 308.9844  | 0.0756 | 0.0000 | 310.5723 |

#### Unmitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e     |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|----------|
| Category | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |             |        |          |
| Hauling  | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000   |
| Vendor   | 0.0178  | 0.1671 | 0.2364 | 4.8000e-004 | 0.0137        | 2.5700e-003  | 0.0162     | 3.9000e-003    | 2.3600e-003   | 6.2600e-003 | 0.0000   | 42.0553   | 42.0553   | 3.0000e-004 | 0.0000 | 42.0617  |
| Worker   | 0.0214  | 0.0317 | 0.3322 | 9.9000e-004 | 0.0831        | 5.7000e-004  | 0.0837     | 0.0221         | 5.3000e-004   | 0.0226      | 0.0000   | 69.2983   | 69.2983   | 3.1700e-003 | 0.0000 | 69.3649  |
| Total    | 0.0392  | 0.1988 | 0.5686 | 1.4700e-003 | 0.0968        | 3.1400e-003  | 0.0999     | 0.0260         | 2.8900e-003   | 0.0289      | 0.0000   | 111.3536  | 111.3536  | 3.4700e-003 | 0.0000 | 111.4266 |

### 3.2 Building Construction - 2018

#### Mitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |        |        |          |  |
| Off-Road | 0.3483  | 3.0355 | 2.2880 | 3.5000e-003 |               | 0.1950       | 0.1950     |                | 0.1833        | 0.1833      | 0.0000   | 308.9841  | 308.9841  | 0.0756 | 0.0000 | 310.5720 |  |
| Total    | 0.3483  | 3.0355 | 2.2880 | 3.5000e-003 |               | 0.1950       | 0.1950     |                | 0.1833        | 0.1833      | 0.0000   | 308.9841  | 308.9841  | 0.0756 | 0.0000 | 310.5720 |  |

#### Mitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e     |  |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|----------|--|
| Category | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |          |  |
| Hauling  | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000   |  |
| Vendor   | 0.0178  | 0.1671 | 0.2364 | 4.8000e-004 | 0.0137        | 2.5700e-003  | 0.0162     | 3.9000e-003    | 2.3600e-003   | 6.2600e-003 | 0.0000   | 42.0553   | 42.0553   | 3.0000e-004 | 0.0000 | 42.0617  |  |
| Worker   | 0.0214  | 0.0317 | 0.3322 | 9.9000e-004 | 0.0831        | 5.7000e-004  | 0.0837     | 0.0221         | 5.3000e-004   | 0.0226      | 0.0000   | 69.2983   | 69.2983   | 3.1700e-003 | 0.0000 | 69.3649  |  |
| Total    | 0.0392  | 0.1988 | 0.5686 | 1.4700e-003 | 0.0968        | 3.1400e-003  | 0.0999     | 0.0260         | 2.8900e-003   | 0.0289      | 0.0000   | 111.3536  | 111.3536  | 3.4700e-003 | 0.0000 | 111.4266 |  |

### 3.2 Building Construction - 2019

#### Unmitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|
| Category | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |        |        |          |
| Off-Road | 0.2810  | 2.5053 | 2.0459 | 3.2000e-003 |               | 0.1536       | 0.1536     |                | 0.1444        | 0.1444      | 0.0000   | 279.7767  | 279.7767  | 0.0681 | 0.0000 | 281.2062 |
| Total    | 0.2810  | 2.5053 | 2.0459 | 3.2000e-003 |               | 0.1536       | 0.1536     |                | 0.1444        | 0.1444      | 0.0000   | 279.7767  | 279.7767  | 0.0681 | 0.0000 | 281.2062 |

#### Unmitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|
| Category | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |             |        |         |
| Hauling  | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |
| Vendor   | 0.0153  | 0.1418 | 0.2064 | 4.4000e-004 | 0.0125        | 2.1900e-003  | 0.0147     | 3.5700e-003    | 2.0200e-003   | 5.5900e-003 | 0.0000   | 37.9752   | 37.9752   | 2.8000e-004 | 0.0000 | 37.9810 |
| Worker   | 0.0183  | 0.0269 | 0.2834 | 9.1000e-004 | 0.0761        | 5.3000e-004  | 0.0766     | 0.0202         | 4.9000e-004   | 0.0207      | 0.0000   | 61.4768   | 61.4768   | 2.7700e-003 | 0.0000 | 61.5350 |
| Total    | 0.0336  | 0.1688 | 0.4898 | 1.3500e-003 | 0.0886        | 2.7200e-003  | 0.0913     | 0.0238         | 2.5100e-003   | 0.0263      | 0.0000   | 99.4519   | 99.4519   | 3.0500e-003 | 0.0000 | 99.5160 |

### 3.2 Building Construction - 2019

#### Mitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e     |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|
| Category | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |        |        |          |
| Off-Road | 0.2810  | 2.5053 | 2.0459 | 3.2000e-003 |               | 0.1536       | 0.1536     |                | 0.1444        | 0.1444      | 0.0000   | 279.7764  | 279.7764  | 0.0681 | 0.0000 | 281.2059 |
| Total    | 0.2810  | 2.5053 | 2.0459 | 3.2000e-003 |               | 0.1536       | 0.1536     |                | 0.1444        | 0.1444      | 0.0000   | 279.7764  | 279.7764  | 0.0681 | 0.0000 | 281.2059 |

#### Mitigated Construction Off-Site

|          | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |
|----------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|
| Category | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |             |        |         |
| Hauling  | 0.0000  | 0.0000 | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |
| Vendor   | 0.0153  | 0.1418 | 0.2064 | 4.4000e-004 | 0.0125        | 2.1900e-003  | 0.0147     | 3.5700e-003    | 2.0200e-003   | 5.5900e-003 | 0.0000   | 37.9752   | 37.9752   | 2.8000e-004 | 0.0000 | 37.9810 |
| Worker   | 0.0183  | 0.0269 | 0.2834 | 9.1000e-004 | 0.0761        | 5.3000e-004  | 0.0766     | 0.0202         | 4.9000e-004   | 0.0207      | 0.0000   | 61.4768   | 61.4768   | 2.7700e-003 | 0.0000 | 61.5350 |
| Total    | 0.0336  | 0.1688 | 0.4898 | 1.3500e-003 | 0.0886        | 2.7200e-003  | 0.0913     | 0.0238         | 2.5100e-003   | 0.0263      | 0.0000   | 99.4519   | 99.4519   | 3.0500e-003 | 0.0000 | 99.5160 |

### 3.3 Architectural Coating - 2018

#### Unmitigated Construction On-Site

|                 | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |
|-----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|
| Category        | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |             |        |         |
| Archit. Coating | 0.5879  |        |        |             |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |
| Off-Road        | 0.0390  | 0.2618 | 0.2420 | 3.9000e-004 |               | 0.0197       | 0.0197     |                | 0.0197        | 0.0197      | 0.0000   | 33.3200   | 33.3200   | 3.1700e-003 | 0.0000 | 33.3865 |
| Total           | 0.6269  | 0.2618 | 0.2420 | 3.9000e-004 |               | 0.0197       | 0.0197     |                | 0.0197        | 0.0197      | 0.0000   | 33.3200   | 33.3200   | 3.1700e-003 | 0.0000 | 33.3865 |

#### Unmitigated Construction Off-Site

|          | ROG         | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |
|----------|-------------|-------------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|
| Category | tons/yr     |             |        |             |               |              |            |                |               |             | MT/yr    |           |           |             |        |         |
| Hauling  | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |
| Vendor   | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |
| Worker   | 4.4300e-003 | 6.5700e-003 | 0.0687 | 2.0000e-004 | 0.0172        | 1.2000e-004  | 0.0173     | 4.5700e-003    | 1.1000e-004   | 4.6700e-003 | 0.0000   | 14.3376   | 14.3376   | 6.6000e-004 | 0.0000 | 14.3514 |
| Total    | 4.4300e-003 | 6.5700e-003 | 0.0687 | 2.0000e-004 | 0.0172        | 1.2000e-004  | 0.0173     | 4.5700e-003    | 1.1000e-004   | 4.6700e-003 | 0.0000   | 14.3376   | 14.3376   | 6.6000e-004 | 0.0000 | 14.3514 |

### 3.3 Architectural Coating - 2018

#### Mitigated Construction On-Site

|                 | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4     | N2O         | CO2e   |         |
|-----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|---------|-------------|--------|---------|
| Category        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |         |             |        |         |
| Archit. Coating | 0.5879  |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000  | 0.0000      | 0.0000 | 0.0000  |
| Off-Road        | 0.0390  | 0.2618 | 0.2420 | 3.9000e-004 |               |              | 0.0197     | 0.0197         |               | 0.0197      | 0.0197   | 0.0000    | 33.3200   | 33.3200 | 3.1700e-003 | 0.0000 | 33.3865 |
| Total           | 0.6269  | 0.2618 | 0.2420 | 3.9000e-004 |               |              | 0.0197     | 0.0197         |               | 0.0197      | 0.0197   | 0.0000    | 33.3200   | 33.3200 | 3.1700e-003 | 0.0000 | 33.3865 |

#### Mitigated Construction Off-Site

|          | ROG         | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|-------------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |             |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 4.4300e-003 | 6.5700e-003 | 0.0687 | 2.0000e-004 | 0.0172        | 1.2000e-004  | 0.0173     | 4.5700e-003    | 1.1000e-004   | 4.6700e-003 | 0.0000   | 14.3376   | 14.3376   | 6.6000e-004 | 0.0000 | 14.3514 |  |
| Total    | 4.4300e-003 | 6.5700e-003 | 0.0687 | 2.0000e-004 | 0.0172        | 1.2000e-004  | 0.0173     | 4.5700e-003    | 1.1000e-004   | 4.6700e-003 | 0.0000   | 14.3376   | 14.3376   | 6.6000e-004 | 0.0000 | 14.3514 |  |

### 3.3 Architectural Coating - 2019

#### Unmitigated Construction On-Site

|                 | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4     | N2O         | CO2e   |         |
|-----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|---------|-------------|--------|---------|
| Category        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |         |             |        |         |
| Archit. Coating | 0.5384  |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000  | 0.0000      | 0.0000 | 0.0000  |
| Off-Road        | 0.0318  | 0.2193 | 0.2200 | 3.6000e-004 |               |              | 0.0154     | 0.0154         |               | 0.0154      | 0.0154   | 0.0000    | 30.5114   | 30.5114 | 2.5800e-003 | 0.0000 | 30.5655 |
| Total           | 0.5702  | 0.2193 | 0.2200 | 3.6000e-004 |               |              | 0.0154     | 0.0154         |               | 0.0154      | 0.0154   | 0.0000    | 30.5114   | 30.5114 | 2.5800e-003 | 0.0000 | 30.5655 |

#### Unmitigated Construction Off-Site

|          | ROG         | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|-------------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |             |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 3.7900e-003 | 5.5700e-003 | 0.0586 | 1.9000e-004 | 0.0157        | 1.1000e-004  | 0.0159     | 4.1800e-003    | 1.0000e-004   | 4.2800e-003 | 0.0000   | 12.7193   | 12.7193   | 5.7000e-004 | 0.0000 | 12.7314 |  |
| Total    | 3.7900e-003 | 5.5700e-003 | 0.0586 | 1.9000e-004 | 0.0157        | 1.1000e-004  | 0.0159     | 4.1800e-003    | 1.0000e-004   | 4.2800e-003 | 0.0000   | 12.7193   | 12.7193   | 5.7000e-004 | 0.0000 | 12.7314 |  |

### 3.3 Architectural Coating - 2019

#### Mitigated Construction On-Site

|                 | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4     | N2O         | CO2e   |         |
|-----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|---------|-------------|--------|---------|
| Category        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |         |             |        |         |
| Archit. Coating | 0.5384  |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000  | 0.0000      | 0.0000 | 0.0000  |
| Off-Road        | 0.0318  | 0.2193 | 0.2200 | 3.6000e-004 |               |              | 0.0154     | 0.0154         |               | 0.0154      | 0.0154   | 0.0000    | 30.5114   | 30.5114 | 2.5800e-003 | 0.0000 | 30.5655 |
| Total           | 0.5702  | 0.2193 | 0.2200 | 3.6000e-004 |               |              | 0.0154     | 0.0154         |               | 0.0154      | 0.0154   | 0.0000    | 30.5114   | 30.5114 | 2.5800e-003 | 0.0000 | 30.5655 |

#### Mitigated Construction Off-Site

|          | ROG         | NOx         | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |  |
|----------|-------------|-------------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|--|
| Category | tons/yr     |             |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |        |         |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Vendor   | 0.0000      | 0.0000      | 0.0000 | 0.0000      | 0.0000        | 0.0000       | 0.0000     | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |  |
| Worker   | 3.7900e-003 | 5.5700e-003 | 0.0586 | 1.9000e-004 | 0.0157        | 1.1000e-004  | 0.0159     | 4.1800e-003    | 1.0000e-004   | 4.2800e-003 | 0.0000   | 12.7193   | 12.7193   | 5.7000e-004 | 0.0000 | 12.7314 |  |
| Total    | 3.7900e-003 | 5.5700e-003 | 0.0586 | 1.9000e-004 | 0.0157        | 1.1000e-004  | 0.0159     | 4.1800e-003    | 1.0000e-004   | 4.2800e-003 | 0.0000   | 12.7193   | 12.7193   | 5.7000e-004 | 0.0000 | 12.7314 |  |

### 3.4 Paving - 2020

#### Unmitigated Construction On-Site

|          | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |
|----------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|
| Category | tons/yr     |        |        |             |               |              |             |                |               |             | MT/yr    |           |           |             |        |         |
| Off-Road | 9.9800e-003 | 0.1034 | 0.1076 | 1.7000e-004 |               | 5.5400e-003  | 5.5400e-003 |                | 5.1000e-003   | 5.1000e-003 | 0.0000   | 14.7015   | 14.7015   | 4.7500e-003 | 0.0000 | 14.8014 |
| Paving   | 0.0000      |        |        |             |               | 0.0000       | 0.0000      |                | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |
| Total    | 9.9800e-003 | 0.1034 | 0.1076 | 1.7000e-004 |               | 5.5400e-003  | 5.5400e-003 |                | 5.1000e-003   | 5.1000e-003 | 0.0000   | 14.7015   | 14.7015   | 4.7500e-003 | 0.0000 | 14.8014 |

#### Unmitigated Construction Off-Site

|          | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |
|----------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|
| Category | tons/yr     |             |             |             |               |              |             |                |               |             | MT/yr    |           |           |             |        |        |
| Hauling  | 0.0000      | 0.0000      | 0.0000      | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |
| Vendor   | 0.0000      | 0.0000      | 0.0000      | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |
| Worker   | 2.8000e-004 | 4.1000e-004 | 4.3100e-003 | 1.0000e-005 | 1.2400e-003   | 1.0000e-005  | 1.2400e-003 | 3.3000e-004    | 1.0000e-005   | 3.4000e-004 | 0.0000   | 0.9579    | 0.9579    | 4.0000e-005 | 0.0000 | 0.9588 |
| Total    | 2.8000e-004 | 4.1000e-004 | 4.3100e-003 | 1.0000e-005 | 1.2400e-003   | 1.0000e-005  | 1.2400e-003 | 3.3000e-004    | 1.0000e-005   | 3.4000e-004 | 0.0000   | 0.9579    | 0.9579    | 4.0000e-005 | 0.0000 | 0.9588 |

### 3.4 Paving - 2020

#### Mitigated Construction On-Site

|          | ROG         | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e    |
|----------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|---------|
| Category | tons/yr     |        |        |             |               |              |             |                |               |             | MT/yr    |           |           |             |        |         |
| Off-Road | 9.9800e-003 | 0.1034 | 0.1076 | 1.7000e-004 |               | 5.5400e-003  | 5.5400e-003 |                | 5.1000e-003   | 5.1000e-003 | 0.0000   | 14.7015   | 14.7015   | 4.7500e-003 | 0.0000 | 14.8014 |
| Paving   | 0.0000      |        |        |             |               | 0.0000       | 0.0000      |                | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000  |
| Total    | 9.9800e-003 | 0.1034 | 0.1076 | 1.7000e-004 |               | 5.5400e-003  | 5.5400e-003 |                | 5.1000e-003   | 5.1000e-003 | 0.0000   | 14.7015   | 14.7015   | 4.7500e-003 | 0.0000 | 14.8014 |

#### Mitigated Construction Off-Site

|          | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |
|----------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|
| Category | tons/yr     |             |             |             |               |              |             |                |               |             | MT/yr    |           |           |             |        |        |
| Hauling  | 0.0000      | 0.0000      | 0.0000      | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |
| Vendor   | 0.0000      | 0.0000      | 0.0000      | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |
| Worker   | 2.8000e-004 | 4.1000e-004 | 4.3100e-003 | 1.0000e-005 | 1.2400e-003   | 1.0000e-005  | 1.2400e-003 | 3.3000e-004    | 1.0000e-005   | 3.4000e-004 | 0.0000   | 0.9579    | 0.9579    | 4.0000e-005 | 0.0000 | 0.9588 |
| Total    | 2.8000e-004 | 4.1000e-004 | 4.3100e-003 | 1.0000e-005 | 1.2400e-003   | 1.0000e-005  | 1.2400e-003 | 3.3000e-004    | 1.0000e-005   | 3.4000e-004 | 0.0000   | 0.9579    | 0.9579    | 4.0000e-005 | 0.0000 | 0.9588 |

### 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

|             | ROG     | NOx    | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2      | Total CO2      | CH4    | N2O    | CO2e           |  |
|-------------|---------|--------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------------|----------------|--------|--------|----------------|--|
| Category    | tons/yr |        |        |        |               |              |            |                |               |             |          | MT/yr          |                |        |        |                |  |
| Mitigated   | 0.7233  | 1.8047 | 8.2757 | 0.0272 | 1.9684        | 0.0279       | 1.9962     | 0.5260         | 0.0257        | 0.5517      | 0.0000   | 1,878.132<br>3 | 1,878.132<br>3 | 0.0683 | 0.0000 | 1,879.566<br>9 |  |
| Unmitigated | 0.7233  | 1.8047 | 8.2757 | 0.0272 | 1.9684        | 0.0279       | 1.9962     | 0.5260         | 0.0257        | 0.5517      | 0.0000   | 1,878.132<br>3 | 1,878.132<br>3 | 0.0683 | 0.0000 | 1,879.566<br>9 |  |

## 4.2 Trip Summary Information

| Land Use              | Average Daily Trip Rate |          |          | Unmitigated |            | Mitigated  |            |
|-----------------------|-------------------------|----------|----------|-------------|------------|------------|------------|
|                       | Weekday                 | Saturday | Sunday   | Annual VMT  | Annual VMT | Annual VMT | Annual VMT |
| Single Family Housing | 1,531.20                | 1,612.80 | 1403.20  | 5,209,692   | 5,209,692  | 5,209,692  | 5,209,692  |
| Total                 | 1,531.20                | 1,612.80 | 1,403.20 | 5,209,692   | 5,209,692  | 5,209,692  | 5,209,692  |

## 4.3 Trip Type Information

| Land Use              | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                       | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Single Family Housing | 14.70      | 5.90       | 8.70        | 40.20      | 19.20      | 40.60       | 86             | 11       | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.508857 | 0.056420 | 0.193204 | 0.150829 | 0.041936 | 0.005921 | 0.015893 | 0.015805 | 0.001454 | 0.002159 | 0.004747 | 0.000498 | 0.002277 |

## 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

|                         | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4      | N2O         | CO2e        |          |
|-------------------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|----------|-------------|-------------|----------|
| Category                | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |          |             |             |          |
| Electricity Mitigated   |         |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 324.6126  | 324.6126  | 0.0149   | 3.0900e-003 | 325.8830    |          |
| Electricity Unmitigated |         |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 324.6126  | 324.6126  | 0.0149   | 3.0900e-003 | 325.8830    |          |
| NaturalGas Mitigated    | 0.0249  | 0.2130 | 0.0906 | 1.3600e-003 |               |              | 0.0172     | 0.0172         |               | 0.0172      | 0.0172   | 0.0000    | 246.6134  | 246.6134 | 4.7300e-003 | 4.5200e-003 | 248.1142 |
| NaturalGas Unmitigated  | 0.0249  | 0.2130 | 0.0906 | 1.3600e-003 |               |              | 0.0172     | 0.0172         |               | 0.0172      | 0.0172   | 0.0000    | 246.6134  | 246.6134 | 4.7300e-003 | 4.5200e-003 | 248.1142 |

## 5.2 Energy by Land Use - NaturalGas

### Unmitigated

|                       | NaturalGas Use | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4      | N2O         | CO2e        |          |
|-----------------------|----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|----------|-------------|-------------|----------|
| Land Use              | kBTU/yr        | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |          |             |             |          |
| Single Family Housing | 4.62136e+006   | 0.0249  | 0.2130 | 0.0906 | 1.3600e-003 |               |              | 0.0172     | 0.0172         |               | 0.0172      | 0.0172   | 0.0000    | 246.6134  | 246.6134 | 4.7300e-003 | 4.5200e-003 | 248.1142 |
| Total                 |                | 0.0249  | 0.2130 | 0.0906 | 1.3600e-003 |               |              | 0.0172     | 0.0172         |               | 0.0172      | 0.0172   | 0.0000    | 246.6134  | 246.6134 | 4.7300e-003 | 4.5200e-003 | 248.1142 |

## 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        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |             |             |          |
| Single Family Housing | 4.62136e+006   | 0.0249  | 0.2130 | 0.0906 | 1.3600e-003 |               |              | 0.0172     | 0.0172         |               | 0.0172      | 0.0000   | 246.6134  | 246.6134  | 4.7300e-003 | 4.5200e-003 | 248.1142 |
| Total                 |                | 0.0249  | 0.2130 | 0.0906 | 1.3600e-003 |               |              | 0.0172     | 0.0172         |               | 0.0172      | 0.0000   | 246.6134  | 246.6134  | 4.7300e-003 | 4.5200e-003 | 248.1142 |

## 5.3 Energy by Land Use - Electricity

### Unmitigated

|                       | Electricity Use | Total CO2 | CH4    | N2O         | CO2e     |
|-----------------------|-----------------|-----------|--------|-------------|----------|
| Land Use              | kWh/yr          | MT/yr     |        |             |          |
| Single Family Housing | 1.13435e+006    | 324.6126  | 0.0149 | 3.0900e-003 | 325.8830 |
| Total                 |                 | 324.6126  | 0.0149 | 3.0900e-003 | 325.8830 |

## 5.3 Energy by Land Use - Electricity

### Mitigated

|                       | Electricity Use | Total CO2       | CH4           | N2O                | CO2e            |
|-----------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use              | kWh/yr          | MT/yr           |               |                    |                 |
| Single Family Housing | 1.13435e+006    | 324.6126        | 0.0149        | 3.0900e-003        | 325.8830        |
| <b>Total</b>          |                 | <b>324.6126</b> | <b>0.0149</b> | <b>3.0900e-003</b> | <b>325.8830</b> |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

Use only Natural Gas Hearths

|             | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e    |
|-------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|---------|
| Category    | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |             |             |         |
| Mitigated   | 1.2072  | 0.0192 | 1.6557 | 9.0000e-005 |               |              | 0.0115     | 0.0115         |               | 0.0115      | 0.0000   | 37.2750   | 37.2750   | 3.2900e-003 | 6.3000e-004 | 37.5407 |
| Unmitigated | 1.7278  | 0.0324 | 2.6608 | 1.6900e-003 |               |              | 0.1619     | 0.1619         |               | 0.1619      | 16.9951  | 35.3539   | 52.3490   | 0.0533      | 1.1500e-003 | 53.8261 |

## 6.2 Area by SubCategory

### Unmitigated

|                       | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2       | NBio- CO2      | Total CO2      | CH4           | N2O                | CO2e           |
|-----------------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|----------------|----------------|---------------|--------------------|----------------|
| SubCategory           | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr          |                |                |               |                    |                |
| Architectural Coating | 0.1126        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000         | 0.0000        | 0.0000             | 0.0000         |
| Consumer Products     | 1.0407        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000         | 0.0000        | 0.0000             | 0.0000         |
| Hearth                | 0.5241        | 0.0133        | 1.0053        | 1.6000e-003        |               | 0.1528        | 0.1528        |                | 0.1528        | 0.1528        | 16.9951        | 32.6587        | 49.6537        | 0.0507        | 1.1500e-003        | 51.0756        |
| Landscaping           | 0.0504        | 0.0192        | 1.6555        | 9.0000e-005        |               | 9.1000e-003   | 9.1000e-003   |                | 9.1000e-003   | 9.1000e-003   | 0.0000         | 2.6953         | 2.6953         | 2.6300e-003   | 0.0000             | 2.7505         |
| <b>Total</b>          | <b>1.7278</b> | <b>0.0325</b> | <b>2.6608</b> | <b>1.6900e-003</b> |               | <b>0.1619</b> | <b>0.1619</b> |                | <b>0.1619</b> | <b>0.1619</b> | <b>16.9951</b> | <b>35.3539</b> | <b>52.3490</b> | <b>0.0533</b> | <b>1.1500e-003</b> | <b>53.8261</b> |

## 6.2 Area by SubCategory

### Mitigated

|                       | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10 | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2     | Total CO2      | CH4            | N2O                | CO2e               |                |
|-----------------------|---------------|---------------|---------------|--------------------|---------------|--------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|----------------|--------------------|--------------------|----------------|
| SubCategory           | tons/yr       |               |               |                    |               |              |               |                |               |               |               | MT/yr         |                |                |                    |                    |                |
| Architectural Coating | 0.1126        |               |               |                    |               |              | 0.0000        | 0.0000         |               | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         |
| Consumer Products     | 1.0407        |               |               |                    |               |              | 0.0000        | 0.0000         |               | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         |
| Hearth                | 3.4900e-003   | 0.0000        | 1.9000e-004   | 0.0000             |               | 2.4100e-003  | 2.4100e-003   |                | 2.3900e-003   | 2.3900e-003   | 0.0000        | 34.5798       | 34.5798        | 6.6000e-004    | 6.3000e-004        | 34.7902            |                |
| Landscaping           | 0.0504        | 0.0192        | 1.6555        | 9.0000e-005        |               | 9.1000e-003  | 9.1000e-003   |                | 9.1000e-003   | 9.1000e-003   | 0.0000        | 2.6953        | 2.6953         | 2.6300e-003    | 0.0000             | 2.7505             |                |
| <b>Total</b>          | <b>1.2072</b> | <b>0.0192</b> | <b>1.6557</b> | <b>9.0000e-005</b> |               |              | <b>0.0115</b> | <b>0.0115</b>  |               | <b>0.0115</b> | <b>0.0115</b> | <b>0.0000</b> | <b>37.2750</b> | <b>37.2750</b> | <b>3.2900e-003</b> | <b>6.3000e-004</b> | <b>37.5407</b> |

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

|             | Total CO2 | CH4    | N2O         | CO2e    |
|-------------|-----------|--------|-------------|---------|
| Category    | MT/yr     |        |             |         |
| Mitigated   | 63.0460   | 0.3424 | 8.5800e-003 | 72.8944 |
| Unmitigated | 63.0460   | 0.3424 | 8.5900e-003 | 72.8996 |

## 7.2 Water by Land Use

### Unmitigated

|                          | Indoor/Out<br>door Use | Total CO2      | CH4           | N2O                     | CO2e           |
|--------------------------|------------------------|----------------|---------------|-------------------------|----------------|
| Land Use                 | Mgal                   | MT/yr          |               |                         |                |
| Single Family<br>Housing | 10.4246 /<br>6.57206   | 63.0460        | 0.3424        | 8.5900e-<br>003         | 72.8996        |
| <b>Total</b>             |                        | <b>63.0460</b> | <b>0.3424</b> | <b>8.5900e-<br/>003</b> | <b>72.8996</b> |

### Mitigated

|                          | Indoor/Out<br>door Use | Total CO2      | CH4           | N2O                     | CO2e           |
|--------------------------|------------------------|----------------|---------------|-------------------------|----------------|
| Land Use                 | Mgal                   | MT/yr          |               |                         |                |
| Single Family<br>Housing | 10.4246 /<br>6.57206   | 63.0460        | 0.3424        | 8.5800e-<br>003         | 72.8944        |
| <b>Total</b>             |                        | <b>63.0460</b> | <b>0.3424</b> | <b>8.5800e-<br/>003</b> | <b>72.8944</b> |

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

Category/Year

|             | Total CO2 | CH4    | N2O    | CO2e    |
|-------------|-----------|--------|--------|---------|
|             | MT/yr     |        |        |         |
| Mitigated   | 38.1176   | 2.2527 | 0.0000 | 85.4241 |
| Unmitigated | 38.1176   | 2.2527 | 0.0000 | 85.4241 |

**8.2 Waste by Land Use**Unmitigated

|                       | Waste Disposed | Total CO2 | CH4    | N2O    | CO2e    |
|-----------------------|----------------|-----------|--------|--------|---------|
| Land Use              | tons           | MT/yr     |        |        |         |
| Single Family Housing | 187.78         | 38.1176   | 2.2527 | 0.0000 | 85.4241 |
| Total                 |                | 38.1176   | 2.2527 | 0.0000 | 85.4241 |

## 8.2 Waste by Land Use

### Mitigated

|                       | Waste Disposed | Total CO2      | CH4           | N2O           | CO2e           |
|-----------------------|----------------|----------------|---------------|---------------|----------------|
| Land Use              | tons           | MT/yr          |               |               |                |
| Single Family Housing | 187.78         | 38.1176        | 2.2527        | 0.0000        | 85.4241        |
| <b>Total</b>          |                | <b>38.1176</b> | <b>2.2527</b> | <b>0.0000</b> | <b>85.4241</b> |

## 9.0 Operational Offroad

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

## 10.0 Vegetation

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## Esperanza Hills Operational Build Out

Orange County, Summer

### 1.0 Project Characteristics

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#### 1.1 Land Usage

| Land Uses             | Size   | Metric        | Lot Acreage | Floor Surface Area | Population |
|-----------------------|--------|---------------|-------------|--------------------|------------|
| Single Family Housing | 378.00 | Dwelling Unit | 122.73      | 680,400.00         | 1081       |

#### 1.2 Other Project Characteristics

|                            |                            |                            |       |                            |       |
|----------------------------|----------------------------|----------------------------|-------|----------------------------|-------|
| Urbanization               | Urban                      | Wind Speed (m/s)           | 2.2   | Precipitation Freq (Days)  | 30    |
| Climate Zone               | 8                          |                            |       | Operational Year           | 2020  |
| Utility Company            | Southern California Edison |                            |       |                            |       |
| CO2 Intensity<br>(lb/MWhr) | 630.89                     | CH4 Intensity<br>(lb/MWhr) | 0.029 | N2O Intensity<br>(lb/MWhr) | 0.006 |

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

Project Characteristics -

Land Use -

Construction Phase - Operational Only

Off-road Equipment -

Off-road Equipment - Operational emissions only

Area Mitigation -

| Table Name                | Column Name                | Default Value | New Value |
|---------------------------|----------------------------|---------------|-----------|
| tblConstructionPhase      | NumDays                    | 3,100.00      | 1.00      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 1.00          | 0.00      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 3.00          | 0.00      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 1.00          | 0.00      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 3.00          | 0.00      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 1.00          | 0.00      |
| tblProjectCharacteristics | OperationalYear            | 2014          | 2020      |

## 2.0 Emissions Summary

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## 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        |                   |                   |               |               |                   |  |
| 2017         | 0.7523        | 3.7015        | 10.6564        | 0.0271        | 1.7702        | 0.0593        | 1.8295        | 0.4744         | 0.0546        | 0.5290        | 0.0000        | 2,336.7084        | 2,336.7084        | 0.0733        | 0.0000        | 2,338.2478        |  |
| <b>Total</b> | <b>0.7523</b> | <b>3.7015</b> | <b>10.6564</b> | <b>0.0271</b> | <b>1.7702</b> | <b>0.0593</b> | <b>1.8295</b> | <b>0.4744</b>  | <b>0.0546</b> | <b>0.5290</b> | <b>0.0000</b> | <b>2,336.7084</b> | <b>2,336.7084</b> | <b>0.0733</b> | <b>0.0000</b> | <b>2,338.2478</b> |  |

## **Mitigated Construction**

|              | ROG           | NOx           | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2         | Total CO2         | CH4           | N2O           | CO2e              |  |
|--------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|---------------|-------------------|--|
| Year         | lb/day        |               |                |               |               |               |               |                |               |               | lb/day        |                   |                   |               |               |                   |  |
| 2017         | 0.7523        | 3.7015        | 10.6564        | 0.0271        | 1.7702        | 0.0593        | 1.8295        | 0.4744         | 0.0546        | 0.5290        | 0.0000        | 2,336.7084        | 2,336.7084        | 0.0733        | 0.0000        | 2,338.2478        |  |
| <b>Total</b> | <b>0.7523</b> | <b>3.7015</b> | <b>10.6564</b> | <b>0.0271</b> | <b>1.7702</b> | <b>0.0593</b> | <b>1.8295</b> | <b>0.4744</b>  | <b>0.0546</b> | <b>0.5290</b> | <b>0.0000</b> | <b>2,336.7084</b> | <b>2,336.7084</b> | <b>0.0733</b> | <b>0.0000</b> | <b>2,338.2478</b> |  |

## 2.2 Overall Operational

### Unmitigated Operational

|          | ROG      | NOx     | CO       | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2       | NBio- CO2       | Total CO2       | CH4     | N2O    | CO2e            |  |
|----------|----------|---------|----------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------------|-----------------|-----------------|---------|--------|-----------------|--|
| Category | lb/day   |         |          |        |               |              |            |                |               |             |                | lb/day          |                 |         |        |                 |  |
| Area     | 114.9323 | 2.8750  | 221.2878 | 0.3039 |               | 29.0468      | 29.0468    |                | 29.0423       | 29.0423     | 3,540.695<br>2 | 6,860.152<br>8  | 10,400.84<br>79 | 10.6138 | 0.2403 | 10,698.23<br>59 |  |
| Energy   | 0.3226   | 2.7566  | 1.1730   | 0.0176 |               | 0.2229       | 0.2229     |                | 0.2229        | 0.2229      |                | 3,519.085<br>6  | 3,519.085<br>6  | 0.0675  | 0.0645 | 3,540.502<br>1  |  |
| Mobile   | 9.9853   | 23.0184 | 114.2580 | 0.3859 | 27.5155       | 0.3825       | 27.8980    | 7.3422         | 0.3531        | 7.6953      |                | 29,382.62<br>94 | 29,382.62<br>94 | 1.0350  |        | 29,404.36<br>40 |  |
| Total    | 125.2402 | 28.6500 | 336.7188 | 0.7074 | 27.5155       | 29.6522      | 57.1677    | 7.3422         | 29.6183       | 36.9605     | 3,540.695<br>2 | 39,761.86<br>78 | 43,302.56<br>30 | 11.7162 | 0.3048 | 43,643.10<br>21 |  |

### 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     | 16.5431 | 0.3619  | 31.3252  | 1.6500e-003 |               | 0.6283       | 0.6283     |                | 0.6235        | 0.6235      | 0.0000   | 7,260.388<br>1  | 7,260.388<br>1  | 0.1928 | 0.1321 | 7,305.381<br>7  |  |
| Energy   | 0.3226  | 2.7566  | 1.1730   | 0.0176      |               | 0.2229       | 0.2229     |                | 0.2229        | 0.2229      |          | 3,519.085<br>6  | 3,519.085<br>6  | 0.0675 | 0.0645 | 3,540.502<br>1  |  |
| Mobile   | 9.9853  | 23.0184 | 114.2580 | 0.3859      | 27.5155       | 0.3825       | 27.8980    | 7.3422         | 0.3531        | 7.6953      |          | 29,382.62<br>94 | 29,382.62<br>94 | 1.0350 |        | 29,404.36<br>40 |  |
| Total    | 26.8510 | 26.1370 | 146.7562 | 0.4051      | 27.5155       | 1.2337       | 28.7492    | 7.3422         | 1.1995        | 8.5417      | 0.0000   | 40,162.10<br>31 | 40,162.10<br>31 | 1.2953 | 0.1966 | 40,250.24<br>79 |  |

|                   | ROG   | NOx  | CO    | SO2   | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4   | N2O   | CO2e |
|-------------------|-------|------|-------|-------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|-------|-------|------|
| Percent Reduction | 78.56 | 8.77 | 56.42 | 42.73 | 0.00          | 95.84        | 49.71      | 0.00           | 95.95         | 76.89       | 100.00   | -1.01    | 7.25      | 88.94 | 35.51 | 7.77 |

### 3.0 Construction Detail

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#### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|----------|---------------|----------|-------------------|
| 1            | Building Construction | Building Construction | 6/1/2017   | 6/1/2017 | 5             | 1        |                   |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

#### OffRoad Equipment

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Building Construction | Cranes                    | 0      | 7.00        | 226         | 0.29        |
| Building Construction | Forklifts                 | 0      | 8.00        | 89          | 0.20        |
| Building Construction | Generator Sets            | 0      | 8.00        | 84          | 0.74        |
| Building Construction | Tractors/Loaders/Backhoes | 0      | 7.00        | 97          | 0.37        |
| Building Construction | Welders                   | 0      | 8.00        | 46          | 0.45        |

#### Trips and VMT

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Building Construction | 0                       | 136.00             | 40.00              | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### 3.1 Mitigation Measures Construction

### 3.2 Building Construction - 2017

#### Unmitigated Construction On-Site

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

#### 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     | 0.0000 | 0.0000     |
| Vendor   | 0.3227 | 3.1479 | 3.8463  | 8.6400e-003 | 0.2500        | 0.0490       | 0.2990     | 0.0712         | 0.0450        | 0.1162      | 853.3168   | 853.3168   | 5.9600e-003 | 853.4421   |        |            |
| Worker   | 0.4296 | 0.5535 | 6.8101  | 0.0185      | 1.5202        | 0.0104       | 1.5305     | 0.4032         | 9.5900e-003   | 0.4128      | 1,483.3916 | 1,483.3916 | 0.0673      | 1,484.8057 |        |            |
| Total    | 0.7523 | 3.7015 | 10.6564 | 0.0271      | 1.7702        | 0.0593       | 1.8295     | 0.4744         | 0.0546        | 0.5290      | 2,336.7084 | 2,336.7084 | 0.0733      |            |        | 2,338.2478 |

### 3.2 Building Construction - 2017

#### Mitigated Construction On-Site

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

#### 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 | 0.0000 | 0.0000     |  |
| Vendor   | 0.3227 | 3.1479 | 3.8463  | 8.6400e-003 | 0.2500        | 0.0490       | 0.2990     | 0.0712         | 0.0450        | 0.1162      | 853.3168   | 853.3168   | 5.9600e-003 |        |        | 853.4421   |  |
| Worker   | 0.4296 | 0.5535 | 6.8101  | 0.0185      | 1.5202        | 0.0104       | 1.5305     | 0.4032         | 9.5900e-003   | 0.4128      | 1,483.3916 | 1,483.3916 | 0.0673      |        |        | 1,484.8057 |  |
| Total    | 0.7523 | 3.7015 | 10.6564 | 0.0271      | 1.7702        | 0.0593       | 1.8295     | 0.4744         | 0.0546        | 0.5290      | 2,336.7084 | 2,336.7084 | 0.0733      |        |        | 2,338.2478 |  |

### 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   | 9.9853 | 23.0184 | 114.2580 | 0.3859 | 27.5155       | 0.3825       | 27.8980    | 7.3422         | 0.3531        | 7.6953      | 29,382.62 | 29,382.62 | 1.0350    |     |     | 29,404.36 |  |
| Unmitigated | 9.9853 | 23.0184 | 114.2580 | 0.3859 | 27.5155       | 0.3825       | 27.8980    | 7.3422         | 0.3531        | 7.6953      | 29,382.62 | 29,382.62 | 1.0350    |     |     | 29,404.36 |  |

## 4.2 Trip Summary Information

| Land Use              | Average Daily Trip Rate |          |          | Unmitigated |            | Mitigated  |            |
|-----------------------|-------------------------|----------|----------|-------------|------------|------------|------------|
|                       | Weekday                 | Saturday | Sunday   | Annual VMT  | Annual VMT | Annual VMT | Annual VMT |
| Single Family Housing | 3,617.46                | 3,810.24 | 3315.06  | 12,307,898  | 12,307,898 | 12,307,898 | 12,307,898 |
| Total                 | 3,617.46                | 3,810.24 | 3,315.06 | 12,307,898  | 12,307,898 | 12,307,898 | 12,307,898 |

## 4.3 Trip Type Information

| Land Use              | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                       | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Single Family Housing | 14.70      | 5.90       | 8.70        | 40.20      | 19.20      | 40.60       | 86             | 11       | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.508857 | 0.056420 | 0.193204 | 0.150829 | 0.041936 | 0.005921 | 0.015893 | 0.015805 | 0.001454 | 0.002159 | 0.004747 | 0.000498 | 0.002277 |

## 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

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|                        | ROG    | NOx    | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2       | NBio- CO2      | Total CO2 | CH4    | N2O            | CO2e |  |
|------------------------|--------|--------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------------|----------------|-----------|--------|----------------|------|--|
| Category               | lb/day |        |        |        |               |              |            |                |               |             |                | lb/day         |           |        |                |      |  |
| NaturalGas Mitigated   | 0.3226 | 2.7566 | 1.1730 | 0.0176 |               | 0.2229       | 0.2229     |                | 0.2229        | 0.2229      | 3,519.085<br>6 | 3,519.085<br>6 | 0.0675    | 0.0645 | 3,540.502<br>1 |      |  |
| NaturalGas Unmitigated | 0.3226 | 2.7566 | 1.1730 | 0.0176 |               | 0.2229       | 0.2229     |                | 0.2229        | 0.2229      | 3,519.085<br>6 | 3,519.085<br>6 | 0.0675    | 0.0645 | 3,540.502<br>1 |      |  |

## 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 | 29912.2        | 0.3226 | 2.7566 | 1.1730 | 0.0176 |               | 0.2229       | 0.2229     |                | 0.2229        | 0.2229      | 3,519.085<br>6 | 3,519.085<br>6 | 0.0675    | 0.0645 | 3,540.502<br>1 |      |
| Total                 |                | 0.3226 | 2.7566 | 1.1730 | 0.0176 |               | 0.2229       | 0.2229     |                | 0.2229        | 0.2229      | 3,519.085<br>6 | 3,519.085<br>6 | 0.0675    | 0.0645 | 3,540.502<br>1 |      |

## 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 | 29.9122        | 0.3226 | 2.7566 | 1.1730 | 0.0176 |               | 0.2229       | 0.2229     |                | 0.2229        | 0.2229      | 3,519.085 | 3,519.085 | 0.0675    | 0.0645 | 3,540.502 |      |
| Total                 |                | 0.3226 | 2.7566 | 1.1730 | 0.0176 |               | 0.2229       | 0.2229     |                | 0.2229        | 0.2229      | 3,519.085 | 3,519.085 | 0.0675    | 0.0645 | 3,540.502 |      |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

Use only Natural Gas Hearths

|             | ROG      | NOx    | CO       | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2  | NBio- CO2 | Total CO2 | CH4     | N2O    | CO2e      |
|-------------|----------|--------|----------|-------------|---------------|--------------|------------|----------------|---------------|-------------|-----------|-----------|-----------|---------|--------|-----------|
| Category    | lb/day   |        |          |             |               |              |            |                |               |             | lb/day    |           |           |         |        |           |
| Mitigated   | 16.5431  | 0.3619 | 31.3252  | 1.6500e-003 |               | 0.6283       | 0.6283     |                | 0.6235        | 0.6235      | 0.0000    | 7,260.388 | 7,260.388 | 0.1928  | 0.1321 | 7,305.381 |
| Unmitigated | 114.9323 | 2.8750 | 221.2878 | 0.3039      |               | 29.0468      | 29.0468    |                | 29.0423       | 29.0423     | 3,540.695 | 6,860.152 | 10,400.84 | 10.6138 | 0.2403 | 10,698.23 |

## 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 | 1.4580          |               |                 |               |               | 0.0000         | 0.0000         |                | 0.0000         | 0.0000         |                        |                        | 0.0000                  |                |               | 0.0000                  |
| Consumer Products     | 13.4719         |               |                 |               |               | 0.0000         | 0.0000         |                | 0.0000         | 0.0000         |                        |                        | 0.0000                  |                |               | 0.0000                  |
| Hearth                | 99.0496         | 2.5131        | 189.9986        | 0.3023        |               | 28.8748        | 28.8748        |                | 28.8703        | 28.8703        | 3,540.695<br>2         | 6,804.000<br>0         | 10,344.69<br>52         | 10.5590        | 0.2403        | 10,640.93<br>33         |
| Landscaping           | 0.9528          | 0.3619        | 31.2891         | 1.6500e-003   |               | 0.1721         | 0.1721         |                | 0.1721         | 0.1721         |                        | 56.1528                | 56.1528                 | 0.0548         |               | 57.3026                 |
| <b>Total</b>          | <b>114.9323</b> | <b>2.8750</b> | <b>221.2878</b> | <b>0.3039</b> |               | <b>29.0468</b> | <b>29.0468</b> |                | <b>29.0423</b> | <b>29.0423</b> | <b>3,540.695<br/>2</b> | <b>6,860.152<br/>8</b> | <b>10,400.84<br/>79</b> | <b>10.6138</b> | <b>0.2403</b> | <b>10,698.23<br/>59</b> |

## 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         |                |        |        |                |  |
| Consumer Products     | 13.4719 |             |         |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   |                |                | 0.0000 |        | 0.0000         |  |
| Hearth                | 0.6604  | 3.0000e-005 | 0.0360  | 0.0000      |               | 0.4563       | 0.4563     |                | 0.4515        | 0.4515      | 0.0000   | 7,204.235<br>3 | 7,204.235<br>3 | 0.1381 | 0.1321 | 7,248.079<br>1 |  |
| Landscaping           | 0.9528  | 0.3619      | 31.2891 | 1.6500e-003 |               | 0.1721       | 0.1721     |                | 0.1721        | 0.1721      |          | 56.1528        | 56.1528        | 0.0548 |        | 57.3026        |  |
| Architectural Coating | 1.4580  |             |         |             |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      |          |                | 0.0000         |        |        | 0.0000         |  |
| Total                 | 16.5431 | 0.3619      | 31.3252 | 1.6500e-003 |               | 0.6283       | 0.6283     |                | 0.6235        | 0.6235      | 0.0000   | 7,260.388<br>1 | 7,260.388<br>1 | 0.1928 | 0.1321 | 7,305.381<br>7 |  |

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

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

## 10.0 Vegetation

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## Esperanza Hills Operational Build Out

Orange County, Annual

### 1.0 Project Characteristics

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#### 1.1 Land Usage

| Land Uses             | Size   | Metric        | Lot Acreage | Floor Surface Area | Population |
|-----------------------|--------|---------------|-------------|--------------------|------------|
| Single Family Housing | 378.00 | Dwelling Unit | 122.73      | 680,400.00         | 1081       |

#### 1.2 Other Project Characteristics

|                            |                            |                            |       |                            |       |
|----------------------------|----------------------------|----------------------------|-------|----------------------------|-------|
| Urbanization               | Urban                      | Wind Speed (m/s)           | 2.2   | Precipitation Freq (Days)  | 30    |
| Climate Zone               | 8                          |                            |       | Operational Year           | 2020  |
| Utility Company            | Southern California Edison |                            |       |                            |       |
| CO2 Intensity<br>(lb/MWhr) | 630.89                     | CH4 Intensity<br>(lb/MWhr) | 0.029 | N2O Intensity<br>(lb/MWhr) | 0.006 |

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

Project Characteristics -

Land Use -

Construction Phase - Operational Only

Off-road Equipment -

Off-road Equipment - Operational emissions only

Area Mitigation -

| Table Name                | Column Name                | Default Value | New Value |
|---------------------------|----------------------------|---------------|-----------|
| tblConstructionPhase      | NumDays                    | 3,100.00      | 1.00      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 1.00          | 0.00      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 3.00          | 0.00      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 1.00          | 0.00      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 3.00          | 0.00      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 1.00          | 0.00      |
| tblProjectCharacteristics | OperationalYear            | 2014          | 2020      |

## 2.0 Emissions Summary

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## 2.1 Overall Construction

## **Unmitigated Construction**

|       | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |
|-------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|
| Year  | tons/yr     |             |             |             |               |              |             |                |               |             | MT/yr    |           |           |             |        |        |
| 2017  | 3.8000e-004 | 1.9500e-003 | 5.5000e-003 | 1.0000e-005 | 8.7000e-004   | 3.0000e-005  | 9.0000e-004 | 2.3000e-004    | 3.0000e-005   | 2.6000e-004 | 0.0000   | 1.0325    | 1.0325    | 3.0000e-005 | 0.0000 | 1.0332 |
| Total | 3.8000e-004 | 1.9500e-003 | 5.5000e-003 | 1.0000e-005 | 8.7000e-004   | 3.0000e-005  | 9.0000e-004 | 2.3000e-004    | 3.0000e-005   | 2.6000e-004 | 0.0000   | 1.0325    | 1.0325    | 3.0000e-005 | 0.0000 | 1.0332 |

## **Mitigated Construction**

|       | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |
|-------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|
| Year  | tons/yr     |             |             |             |               |              |             |                |               |             | MT/yr    |           |           |             |        |        |
| 2017  | 3.8000e-004 | 1.9500e-003 | 5.5000e-003 | 1.0000e-005 | 8.7000e-004   | 3.0000e-005  | 9.0000e-004 | 2.3000e-004    | 3.0000e-005   | 2.6000e-004 | 0.0000   | 1.0325    | 1.0325    | 3.0000e-005 | 0.0000 | 1.0332 |
| Total | 3.8000e-004 | 1.9500e-003 | 5.5000e-003 | 1.0000e-005 | 8.7000e-004   | 3.0000e-005  | 9.0000e-004 | 2.3000e-004    | 3.0000e-005   | 2.6000e-004 | 0.0000   | 1.0325    | 1.0325    | 3.0000e-005 | 0.0000 | 1.0332 |

## 2.2 Overall Operational

### Unmitigated Operational

|              | ROG           | NOx           | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2        | NBio- CO2         | Total CO2         | CH4           | N2O           | CO2e              |
|--------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|-----------------|-------------------|-------------------|---------------|---------------|-------------------|
| Category     | tons/yr       |               |                |               |               |               |               |                |               |               | MT/yr           |                   |                   |               |               |                   |
| Area         | 4.0819        | 0.0767        | 6.2861         | 3.9800e-003   |               | 0.3824        | 0.3824        |                | 0.3824        | 0.3824        | 40.1508         | 83.5237           | 123.6745          | 0.1260        | 2.7300e-003   | 127.1642          |
| Energy       | 0.0589        | 0.5031        | 0.2141         | 3.2100e-003   |               | 0.0407        | 0.0407        |                | 0.0407        | 0.0407        | 0.0000          | 1,349.5214        | 1,349.5214        | 0.0464        | 0.0180        | 1,356.0684        |
| Mobile       | 1.7087        | 4.2636        | 19.5514        | 0.0641        | 4.6503        | 0.0658        | 4.7161        | 1.2427         | 0.0608        | 1.3034        | 0.0000          | 4,437.0876        | 4,437.0876        | 0.1614        | 0.0000        | 4,440.4767        |
| Waste        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 89.9676         | 0.0000            | 89.9676           | 5.3169        | 0.0000        | 201.6232          |
| Water        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 7.8134          | 141.1328          | 148.9461          | 0.8090        | 0.0203        | 172.2254          |
| <b>Total</b> | <b>5.8495</b> | <b>4.8433</b> | <b>26.0516</b> | <b>0.0713</b> | <b>4.6503</b> | <b>0.4889</b> | <b>5.1392</b> | <b>1.2427</b>  | <b>0.4838</b> | <b>1.7265</b> | <b>137.9318</b> | <b>6,011.2654</b> | <b>6,149.1972</b> | <b>6.4597</b> | <b>0.0410</b> | <b>6,297.5579</b> |

## 2.2 Overall Operational

### Mitigated Operational

|              | ROG           | NOx           | CO             | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2       | NBio- CO2         | Total CO2         | CH4           | N2O           | CO2e              |  |
|--------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-------------------|-------------------|---------------|---------------|-------------------|--|
| Category     | tons/yr       |               |                |               |               |               |               |                |               |               |                | MT/yr             |                   |               |               |                   |  |
| Area         | 2.8521        | 0.0452        | 3.9116         | 2.1000e-004   |               | 0.0272        | 0.0272        |                | 0.0272        | 0.0272        | 0.0000         | 88.0623           | 88.0623           | 7.7700e-003   | 1.5000e-003   | 88.6898           |  |
| Energy       | 0.0589        | 0.5031        | 0.2141         | 3.2100e-003   |               | 0.0407        | 0.0407        |                | 0.0407        | 0.0407        | 0.0000         | 1,349.5214        | 1,349.5214        | 0.0464        | 0.0180        | 1,356.0684        |  |
| Mobile       | 1.7087        | 4.2636        | 19.5514        | 0.0641        | 4.6503        | 0.0658        | 4.7161        | 1.2427         | 0.0608        | 1.3034        | 0.0000         | 4,437.0876        | 4,437.0876        | 0.1614        | 0.0000        | 4,440.4767        |  |
| Waste        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 89.9676        | 0.0000            | 89.9676           | 5.3169        | 0.0000        | 201.6232          |  |
| Water        |               |               |                |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 7.8134         | 141.1328          | 148.9461          | 0.8089        | 0.0203        | 172.2129          |  |
| <b>Total</b> | <b>4.6196</b> | <b>4.8119</b> | <b>23.6770</b> | <b>0.0676</b> | <b>4.6503</b> | <b>0.1337</b> | <b>4.7840</b> | <b>1.2427</b>  | <b>0.1286</b> | <b>1.3712</b> | <b>97.7810</b> | <b>6,015.8040</b> | <b>6,113.5850</b> | <b>6.3414</b> | <b>0.0397</b> | <b>6,259.0711</b> |  |

|                   | ROG   | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|-------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 21.03 | 0.65 | 9.11 | 5.29 | 0.00          | 72.66        | 6.91       | 0.00           | 73.42         | 20.58       | 29.11    | -0.08    | 0.58      | 1.83 | 3.07 | 0.61 |

## 3.0 Construction Detail

### Construction Phase

| Phase Number | Phase Name            | Phase Type            | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|----------|---------------|----------|-------------------|
| 1            | Building Construction | Building Construction | 6/1/2017   | 6/1/2017 | 5             | 1        |                   |

Acres of Grading (Site Preparation Phase): 0

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

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)**

### OffRoad Equipment

| Phase Name            | Offroad Equipment Type    | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Building Construction | Cranes                    | 0      | 7.00        | 226         | 0.29        |
| Building Construction | Forklifts                 | 0      | 8.00        | 89          | 0.20        |
| Building Construction | Generator Sets            | 0      | 8.00        | 84          | 0.74        |
| Building Construction | Tractors/Loaders/Backhoes | 0      | 7.00        | 97          | 0.37        |
| Building Construction | Welders                   | 0      | 8.00        | 46          | 0.45        |

### Trips and VMT

| Phase Name            | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Building Construction | 0                       | 136.00             | 40.00              | 0.00                | 14.70              | 6.90               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

### **3.1 Mitigation Measures Construction**

### 3.2 Building Construction - 2017

#### Unmitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e   |  |
|----------|---------|--------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|--------|--|
| Category | tons/yr |        |        |        |               |              |            |                |               |             |          | MT/yr     |           |        |        |        |  |
| Off-Road | 0.0000  | 0.0000 | 0.0000 | 0.0000 |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000 | 0.0000 | 0.0000 |  |
| Total    | 0.0000  | 0.0000 | 0.0000 | 0.0000 |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000 | 0.0000 | 0.0000 |  |

#### Unmitigated Construction Off-Site

|          | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |  |
|----------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|--|
| Category | tons/yr     |             |             |             |               |              |             |                |               |             |          | MT/yr     |           |             |        |        |  |
| Hauling  | 0.0000      | 0.0000      | 0.0000      | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 |  |
| Vendor   | 1.7000e-004 | 1.6400e-003 | 2.2300e-003 | 0.0000      | 1.2000e-004   | 2.0000e-005  | 1.5000e-004 | 4.0000e-005    | 2.0000e-005   | 6.0000e-005 | 0.0000   | 0.3857    | 0.3857    | 0.0000      | 0.0000 | 0.3857 |  |
| Worker   | 2.1000e-004 | 3.1000e-004 | 3.2700e-003 | 1.0000e-005 | 7.5000e-004   | 1.0000e-005  | 7.5000e-004 | 2.0000e-004    | 0.0000        | 2.0000e-004 | 0.0000   | 0.6468    | 0.6468    | 3.0000e-005 | 0.0000 | 0.6475 |  |
| Total    | 3.8000e-004 | 1.9500e-003 | 5.5000e-003 | 1.0000e-005 | 8.7000e-004   | 3.0000e-005  | 9.0000e-004 | 2.4000e-004    | 2.0000e-005   | 2.6000e-004 | 0.0000   | 1.0325    | 1.0325    | 3.0000e-005 | 0.0000 | 1.0332 |  |

### 3.2 Building Construction - 2017

#### Mitigated Construction On-Site

|          | ROG     | NOx    | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e   |        |
|----------|---------|--------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|--------|--------|
| Category | tons/yr |        |        |        |               |              |            |                |               |             |          |           |           |        |        | MT/yr  |        |
| Off-Road | 0.0000  | 0.0000 | 0.0000 | 0.0000 |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total    | 0.0000  | 0.0000 | 0.0000 | 0.0000 |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

#### Mitigated Construction Off-Site

|          | ROG         | NOx         | CO          | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total  | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O    | CO2e   |        |
|----------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|--------|
| Category | tons/yr     |             |             |             |               |              |             |                |               |             |          |           |           |             |        | MT/yr  |        |
| Hauling  | 0.0000      | 0.0000      | 0.0000      | 0.0000      | 0.0000        | 0.0000       | 0.0000      | 0.0000         | 0.0000        | 0.0000      | 0.0000   | 0.0000    | 0.0000    | 0.0000      | 0.0000 | 0.0000 | 0.0000 |
| Vendor   | 1.7000e-004 | 1.6400e-003 | 2.2300e-003 | 0.0000      | 1.2000e-004   | 2.0000e-005  | 1.5000e-004 | 4.0000e-005    | 2.0000e-005   | 6.0000e-005 | 0.0000   | 0.3857    | 0.3857    | 0.0000      | 0.0000 | 0.0000 | 0.3857 |
| Worker   | 2.1000e-004 | 3.1000e-004 | 3.2700e-003 | 1.0000e-005 | 7.5000e-004   | 1.0000e-005  | 7.5000e-004 | 2.0000e-004    | 0.0000        | 2.0000e-004 | 0.0000   | 0.6468    | 0.6468    | 3.0000e-005 | 0.0000 | 0.0000 | 0.6475 |
| Total    | 3.8000e-004 | 1.9500e-003 | 5.5000e-003 | 1.0000e-005 | 8.7000e-004   | 3.0000e-005  | 9.0000e-004 | 2.4000e-004    | 2.0000e-005   | 2.6000e-004 | 0.0000   | 1.0325    | 1.0325    | 3.0000e-005 | 0.0000 | 1.0332 |        |

### 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

|             | ROG     | NOx    | CO      | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O    | CO2e      |  |
|-------------|---------|--------|---------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|-----------|--|
| Category    | tons/yr |        |         |        |               |              |            |                |               |             |          | MT/yr     |           |        |        |           |  |
| Mitigated   | 1.7087  | 4.2636 | 19.5514 | 0.0641 | 4.6503        | 0.0658       | 4.7161     | 1.2427         | 0.0608        | 1.3034      | 0.0000   | 4,437.087 | 4,437.087 | 0.1614 | 0.0000 | 4,440.476 |  |
| Unmitigated | 1.7087  | 4.2636 | 19.5514 | 0.0641 | 4.6503        | 0.0658       | 4.7161     | 1.2427         | 0.0608        | 1.3034      | 0.0000   | 4,437.087 | 4,437.087 | 0.1614 | 0.0000 | 4,440.476 |  |

## 4.2 Trip Summary Information

| Land Use              | Average Daily Trip Rate |          |          | Unmitigated |            | Mitigated  |            |
|-----------------------|-------------------------|----------|----------|-------------|------------|------------|------------|
|                       | Weekday                 | Saturday | Sunday   | Annual VMT  | Annual VMT | Annual VMT | Annual VMT |
| Single Family Housing | 3,617.46                | 3,810.24 | 3315.06  | 12,307,898  | 12,307,898 | 12,307,898 | 12,307,898 |
| Total                 | 3,617.46                | 3,810.24 | 3,315.06 | 12,307,898  | 12,307,898 | 12,307,898 | 12,307,898 |

## 4.3 Trip Type Information

| Land Use              | Miles      |            |             | Trip %     |            |             | Trip Purpose % |          |         |
|-----------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
|                       | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary        | Diverted | Pass-by |
| Single Family Housing | 14.70      | 5.90       | 8.70        | 40.20      | 19.20      | 40.60       | 86             | 11       | 3       |

| LDA      | LDT1     | LDT2     | MDV      | LHD1     | LHD2     | MHD      | HHD      | OBUS     | UBUS     | MCY      | SBUS     | MH       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.508857 | 0.056420 | 0.193204 | 0.150829 | 0.041936 | 0.005921 | 0.015893 | 0.015805 | 0.001454 | 0.002159 | 0.004747 | 0.000498 | 0.002277 |

## 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

|                         | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4      | N2O         | CO2e     |          |
|-------------------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|----------|-------------|----------|----------|
| Category                | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |          |             |          |          |
| Electricity Mitigated   |         |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 766.8973  | 766.8973  | 0.0353   | 7.2900e-003 | 769.8986 |          |
| Electricity Unmitigated |         |        |        |             |               |              | 0.0000     | 0.0000         |               | 0.0000      | 0.0000   | 766.8973  | 766.8973  | 0.0353   | 7.2900e-003 | 769.8986 |          |
| NaturalGas Mitigated    | 0.0589  | 0.5031 | 0.2141 | 3.2100e-003 |               |              | 0.0407     | 0.0407         |               | 0.0407      | 0.0407   | 0.0000    | 582.6241  | 582.6241 | 0.0112      | 0.0107   | 586.1698 |
| NaturalGas Unmitigated  | 0.0589  | 0.5031 | 0.2141 | 3.2100e-003 |               |              | 0.0407     | 0.0407         |               | 0.0407      | 0.0407   | 0.0000    | 582.6241  | 582.6241 | 0.0112      | 0.0107   | 586.1698 |

## 5.2 Energy by Land Use - NaturalGas

### Unmitigated

|                       | NaturalGas Use | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4      | N2O    | CO2e   |          |
|-----------------------|----------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|----------|--------|--------|----------|
| Land Use              | kBTU/yr        | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |          |        |        |          |
| Single Family Housing | 1.0918e+007    | 0.0589  | 0.5031 | 0.2141 | 3.2100e-003 |               |              | 0.0407     | 0.0407         |               | 0.0407      | 0.0407   | 0.0000    | 582.6241  | 582.6241 | 0.0112 | 0.0107 | 586.1698 |
| Total                 |                | 0.0589  | 0.5031 | 0.2141 | 3.2100e-003 |               |              | 0.0407     | 0.0407         |               | 0.0407      | 0.0407   | 0.0000    | 582.6241  | 582.6241 | 0.0112 | 0.0107 | 586.1698 |

## 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        | tons/yr |        |        |             |               |              |            |                |               |             |          | MT/yr     |           |        |        |          |
| Single Family Housing | 1.0918e+007    | 0.0589  | 0.5031 | 0.2141 | 3.2100e-003 |               | 0.0407       | 0.0407     |                | 0.0407        | 0.0407      | 0.0000   | 582.6241  | 582.6241  | 0.0112 | 0.0107 | 586.1698 |
| Total                 |                | 0.0589  | 0.5031 | 0.2141 | 3.2100e-003 |               | 0.0407       | 0.0407     |                | 0.0407        | 0.0407      | 0.0000   | 582.6241  | 582.6241  | 0.0112 | 0.0107 | 586.1698 |

## 5.3 Energy by Land Use - Electricity

### Unmitigated

|                       | Electricity Use | Total CO2 | CH4    | N2O         | CO2e     |
|-----------------------|-----------------|-----------|--------|-------------|----------|
| Land Use              | kWh/yr          | MT/yr     |        |             |          |
| Single Family Housing | 2.6799e+006     | 766.8973  | 0.0353 | 7.2900e-003 | 769.8986 |
| Total                 |                 | 766.8973  | 0.0353 | 7.2900e-003 | 769.8986 |

## 5.3 Energy by Land Use - Electricity

### Mitigated

|                       | Electricity Use | Total CO2       | CH4           | N2O                | CO2e            |
|-----------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use              | kWh/yr          | MT/yr           |               |                    |                 |
| Single Family Housing | 2.6799e+006     | 766.8973        | 0.0353        | 7.2900e-003        | 769.8986        |
| <b>Total</b>          |                 | <b>766.8973</b> | <b>0.0353</b> | <b>7.2900e-003</b> | <b>769.8986</b> |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

Use only Natural Gas Hearths

|             | ROG     | NOx    | CO     | SO2         | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4         | N2O         | CO2e     |
|-------------|---------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|
| Category    | tons/yr |        |        |             |               |              |            |                |               |             | MT/yr    |           |           |             |             |          |
| Mitigated   | 2.8521  | 0.0452 | 3.9116 | 2.1000e-004 |               | 0.0272       | 0.0272     |                | 0.0272        | 0.0272      | 0.0000   | 88.0623   | 88.0623   | 7.7700e-003 | 1.5000e-003 | 88.6898  |
| Unmitigated | 4.0819  | 0.0767 | 6.2861 | 3.9800e-003 |               | 0.3824       | 0.3824     |                | 0.3824        | 0.3824      | 40.1508  | 83.5237   | 123.6745  | 0.1260      | 2.7300e-003 | 127.1642 |

## 6.2 Area by SubCategory

### Unmitigated

|                       | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2       | NBio- CO2      | Total CO2       | CH4           | N2O                | CO2e            |
|-----------------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|----------------|-----------------|---------------|--------------------|-----------------|
| SubCategory           | tons/yr       |               |               |                    |               |               |               |                |               |               | MT/yr          |                |                 |               |                    |                 |
| Architectural Coating | 0.2661        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000          | 0.0000        | 0.0000             | 0.0000          |
| Consumer Products     | 2.4586        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000          | 0.0000        | 0.0000             | 0.0000          |
| Hearth                | 1.2381        | 0.0314        | 2.3750        | 3.7800e-003        |               | 0.3609        | 0.3609        |                | 0.3609        | 0.3609        | 40.1508        | 77.1561        | 117.3069        | 0.1197        | 2.7300e-003        | 120.6662        |
| Landscaping           | 0.1191        | 0.0452        | 3.9111        | 2.1000e-004        |               | 0.0215        | 0.0215        |                | 0.0215        | 0.0215        | 0.0000         | 6.3676         | 6.3676          | 6.2100e-003   | 0.0000             | 6.4980          |
| <b>Total</b>          | <b>4.0819</b> | <b>0.0767</b> | <b>6.2861</b> | <b>3.9900e-003</b> |               | <b>0.3824</b> | <b>0.3824</b> |                | <b>0.3824</b> | <b>0.3824</b> | <b>40.1508</b> | <b>83.5237</b> | <b>123.6745</b> | <b>0.1260</b> | <b>2.7300e-003</b> | <b>127.1642</b> |

## 6.2 Area by SubCategory

### Mitigated

|                       | ROG           | NOx           | CO            | SO2                | Fugitive PM10 | Exhaust PM10 | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2      | Total CO2      | CH4                | N2O                | CO2e           |        |
|-----------------------|---------------|---------------|---------------|--------------------|---------------|--------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|--------------------|----------------|--------|
| SubCategory           | tons/yr       |               |               |                    |               |              |               |                |               |               |               | MT/yr          |                |                    |                    |                |        |
| Consumer Products     | 2.4586        |               |               |                    |               |              | 0.0000        | 0.0000         |               | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         | 0.0000 |
| Hearth                | 8.2500e-003   | 0.0000        | 4.5000e-004   | 0.0000             |               | 5.7000e-003  | 5.7000e-003   | 5.6400e-003    | 5.6400e-003   | 0.0000        | 81.6947       | 81.6947        | 1.5700e-003    | 1.5000e-003        | 82.1918            |                |        |
| Landscaping           | 0.1191        | 0.0452        | 3.9111        | 2.1000e-004        |               | 0.0215       | 0.0215        |                | 0.0215        | 0.0215        | 0.0000        | 6.3676         | 6.3676         | 6.2100e-003        | 0.0000             | 6.4980         |        |
| Architectural Coating | 0.2661        |               |               |                    |               | 0.0000       | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 0.0000         | 0.0000         | 0.0000             | 0.0000             | 0.0000         |        |
| <b>Total</b>          | <b>2.8521</b> | <b>0.0452</b> | <b>3.9116</b> | <b>2.1000e-004</b> |               |              | <b>0.0272</b> | <b>0.0272</b>  |               | <b>0.0272</b> | <b>0.0000</b> | <b>88.0623</b> | <b>88.0623</b> | <b>7.7800e-003</b> | <b>1.5000e-003</b> | <b>88.6898</b> |        |

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

|             | Total CO2 | CH4    | N2O    | CO2e     |
|-------------|-----------|--------|--------|----------|
| Category    | MT/yr     |        |        |          |
| Mitigated   | 148.9461  | 0.8089 | 0.0203 | 172.2129 |
| Unmitigated | 148.9461  | 0.8090 | 0.0203 | 172.2254 |

## 7.2 Water by Land Use

### Unmitigated

|                          | Indoor/Out<br>door Use | Total CO2       | CH4           | N2O           | CO2e            |
|--------------------------|------------------------|-----------------|---------------|---------------|-----------------|
| Land Use                 | Mgal                   | MT/yr           |               |               |                 |
| Single Family<br>Housing | 24.6282 /<br>15.5265   | 148.9461        | 0.8090        | 0.0203        | 172.2254        |
| <b>Total</b>             |                        | <b>148.9461</b> | <b>0.8090</b> | <b>0.0203</b> | <b>172.2254</b> |

### Mitigated

|                          | Indoor/Out<br>door Use | Total CO2       | CH4           | N2O           | CO2e            |
|--------------------------|------------------------|-----------------|---------------|---------------|-----------------|
| Land Use                 | Mgal                   | MT/yr           |               |               |                 |
| Single Family<br>Housing | 24.6282 /<br>15.5265   | 148.9461        | 0.8089        | 0.0203        | 172.2129        |
| <b>Total</b>             |                        | <b>148.9461</b> | <b>0.8089</b> | <b>0.0203</b> | <b>172.2129</b> |

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

Category/Year

|             | Total CO2 | CH4    | N2O    | CO2e     |
|-------------|-----------|--------|--------|----------|
|             | MT/yr     |        |        |          |
| Mitigated   | 89.9676   | 5.3169 | 0.0000 | 201.6232 |
| Unmitigated | 89.9676   | 5.3169 | 0.0000 | 201.6232 |

**8.2 Waste by Land Use**Unmitigated

|                       | Waste Disposed | Total CO2 | CH4    | N2O    | CO2e     |
|-----------------------|----------------|-----------|--------|--------|----------|
| Land Use              | tons           | MT/yr     |        |        |          |
| Single Family Housing | 443.21         | 89.9676   | 5.3169 | 0.0000 | 201.6232 |
| Total                 |                | 89.9676   | 5.3169 | 0.0000 | 201.6232 |

## 8.2 Waste by Land Use

### Mitigated

|                       | Waste Disposed | Total CO2      | CH4           | N2O           | CO2e            |
|-----------------------|----------------|----------------|---------------|---------------|-----------------|
| Land Use              | tons           | MT/yr          |               |               |                 |
| Single Family Housing | 443.21         | 89.9676        | 5.3169        | 0.0000        | 201.6232        |
| <b>Total</b>          |                | <b>89.9676</b> | <b>5.3169</b> | <b>0.0000</b> | <b>201.6232</b> |

## 9.0 Operational Offroad

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

## 10.0 Vegetation

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