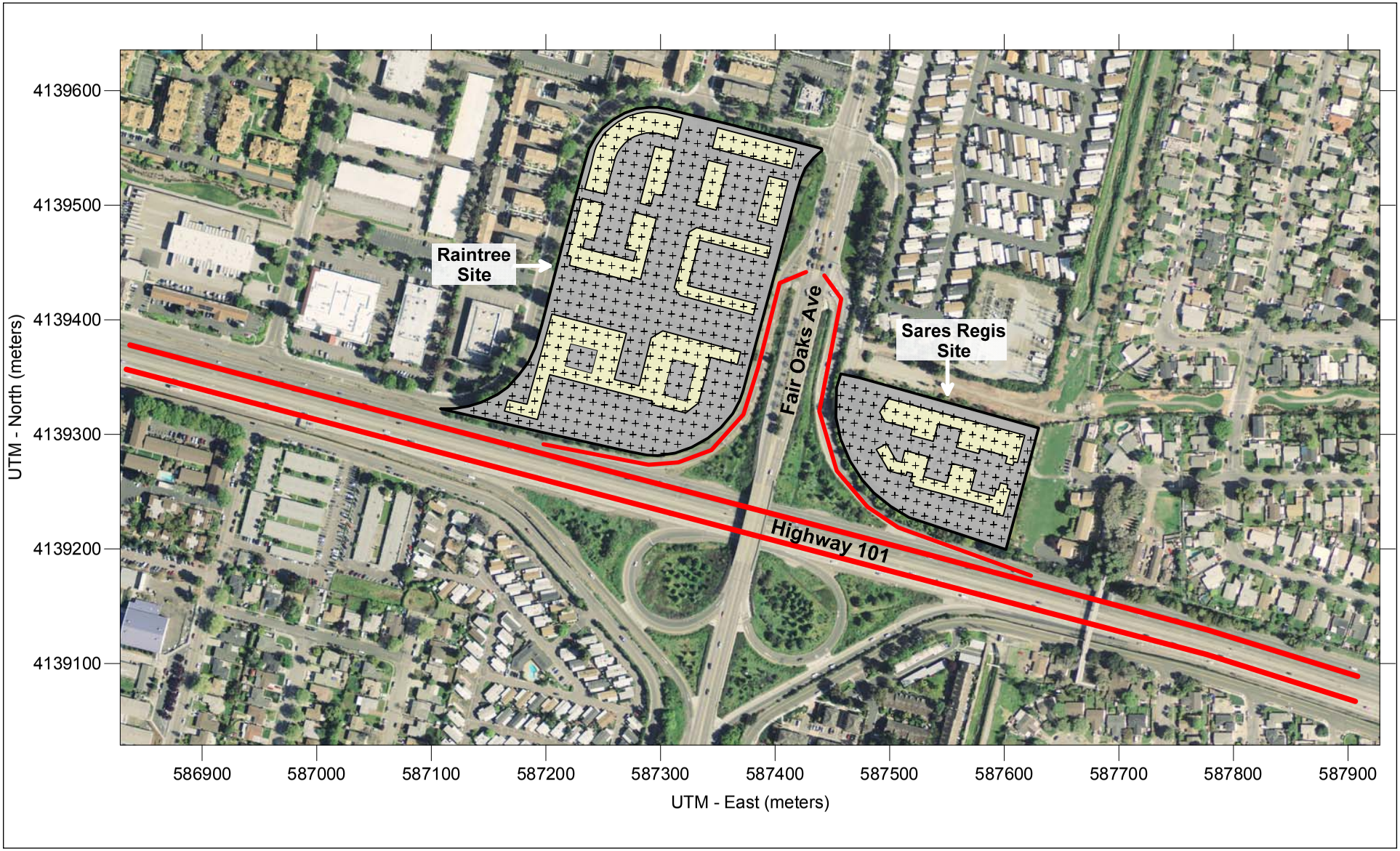

Figure 4.2-1

SOURCE: Illingworth & Rodkin, Inc., 2013

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accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on the road, or retrofitted to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads much quicker. CARB anticipates a 68-percent reduction in $PM_{2.5}$ (including DPM) emission from trucks in 2014 with this regulation.

DPM emission factors were developed for 2016, 2020, and 2025 using the EMFAC2011 model with default model vehicle fleet age distributions for Santa Clara County. The EMFAC2011 results were then adjusted to the traffic volume and mix of diesel-fueled vehicles on Highway 101 reported by Caltrans.

Average daily traffic volumes (Caltrans, 2012a) and truck percentages (Caltrans, 2012b) were based on Caltrans data for Highway 101 for 2011. For the off-ramp to Fair Oaks Avenue and the on-ramp to Highway 101 from Fair Oaks Avenue, traffic volume data from Caltrans ramp volumes for 2011 (Caltrans, 2012c) was used along with the Highway 101 truck percentages. Volumes were assumed to increase 1 percent per year. Average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[1] which were then applied to the site-specific average daily traffic volumes to obtain estimated hourly traffic volumes and emissions for Highway 101.

Traffic speeds were assumed to be 65 mph for light-duty vehicles and 60 mph for trucks on Highway 101 with the exception of the 2-hour period in the morning and evening peak traffic periods. For peak periods, an average speed of 30 mph was used for westbound Highway 101 during the morning period (7:00 AM to 9:00 AM) and 60 mph used for all other peak periods and directions. These average peak period speeds were based on the Santa Clara Valley Transportation Authority's 2011 Monitoring and Conformity Report (VTA, 2011). For the Highway 101 on- and off-ramps at Fair Oaks Avenue, an average speed of 45 mph was assumed. The hourly traffic distributions and emission rates used in the analysis are shown in Appendix D.

In addition to evaluating health risks from DPM, the BAAQMD recommends evaluating health effects from total organic gases (TOG) emissions from tailpipes of non-diesel vehicles and TOG emissions from evaporative running losses from non-diesel vehicles (BAAQMD, 2012c). Emissions of TOG were calculated for 2016, 2020, and 2025 using the EMFAC2011 model. These TOG emissions were then used in the modeling the organic TACs. TOG emissions from both exhaust and running evaporative loses from gasoline vehicles were calculated using EMFAC2011 default model values for Santa Clara County along with the traffic volumes and vehicle mixes for Highway 101.

$PM_{2.5}$ emissions from all vehicle types (diesel and non-diesel) on Highway 101 were calculated for 2016, 2020, and 2025 using the EMFAC2011 model. Average hourly traffic volumes were calculated in a similar manner as discussed above for DPM; however, the traffic volumes used from the EMFAC model were for all vehicles, not just diesel vehicles. The DPM, TOG, and $PM_{2.5}$ emission calculations and emission factors are provided in Appendix D.

[1] The Burden output from EMFAC2007, CARB's previous version of the EMFAC model, was used for this since the current web-based version of EMFAC2011 does not include Burden type output with hour by hour traffic volume information.

Roadway Dispersion Modeling

Dispersion modeling of roadway TAC and $PM_{2.5}$ emissions was conducted using the CAL3QHCR model, which is recommended by the BAAQMD for this type of analysis. A 5-year set of hourly meteorological data (1991 to 1995) for San Jose International Airport obtained from the BAAQMD was used in the modeling.[2] Other inputs to the model included road geometry, hourly traffic volumes, and emission rates. An aerial view showing the project sites and the section of Highway 101 modeled is shown in Figure 4.2-1. A series of receptors, spaced every 10 meters (33 feet), throughout both project sites were used as locations to calculate TAC and $PM_{2.5}$ concentrations. All receptors were placed 1.8 meters (5.9 feet) from the above the ground. Since Highway 101 is relatively flat and at grade with the project, second story or higher receptors would have slightly lower exposures than those receptors modeled in this analysis. Inputs used for the modeling are summarized in Appendix D.

Cancer Risk

Using the modeled long-term average DPM and TOG concentrations, the individual cancer risks were computed at both project sites using the most recent methods recommended by BAAQMD (BAAQMD, 2010a). The factors used to compute cancer risk are highly dependent on modeled concentrations, exposure period or duration, and the type of receptor. The exposure level is determined by the modeled concentration; however, it has to be averaged over a representative exposure period. The averaging period is dependent on many factors, but mostly the type of sensitive receptor that would reside at a site. Recommended inputs for cancer risk predictions are developed by the State Office of Environmental Health Hazard Assessments (OEHHA) and adopted by air districts. OEHHA describes many of these assumptions to develop computed cancer risks (OEHHA, 2003 and 2012). A key assumption is duration of exposure. This analysis uses the assumptions for residency. The average period of U.S. residency at any one location is approximately nine years and the 90th percentile of US residency (used by the U.S. EPA and OEHHA as “reasonable maximum exposure” estimates) is 30 years. The U.S. Census Bureau (2012) indicates that the average person will move 11.7 times in a lifetime. Residency time was found to be less for renters compared to homeowners. Studies performed by CARB, and reported by OEHHA (2012), indicate that 29 years is the 91st percentile residency period. For permitting air pollution sources, such as power plants, the BAAQMD considers an almost continuous 70-year exposure period. This exposure period is meant to clearly represent a worst-case scenario. This would be representative of the longest exposure periods reasonably possible. Furthermore, this exposure period assumes almost continuous exposure to the TAC source (i.e., 350 out of 365 days per year). In addition, cancer risk predictions assume that women in the third trimester, infants, and children that are more susceptible to carcinogens are present at the beginning of the exposure period. This assessment conservatively assumed nearly continuous long-term residential exposures of 70 years, as recommended by the BAAQMD (2010a and 2011c). It should be noted that the cancer risk calculations for 70-year residential exposures reflect use of the BAAQMD’s most recent cancer risk calculation method, adopted in January 2010. The cancer risk calculations were based on applying age sensitivity weighting factors for each emissions

[2] There is also a meteorological monitoring station in Alviso; Meteorological data from the San Jose International Airport was used, because the airport is in a more urban setting similar to the project site and the distances from the project site to both stations were similar.

period modeled. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer-causing TACs.

Maximum cancer risks were modeled at the receptors closest to Highway 101. Cancer risks are greatest closest to Highway 101 and decrease with distance from the highway. **Figures 4.2-2** and **4.2-4** show the maximum cancer risks for receptors at the Sares Regis and Raintree sites, respectively.

$PM_{2.5}$ Concentrations

In addition to the evaluation of the health risks from TACs, potential impacts from $PM_{2.5}$ emissions from vehicles traveling on Highway 101 were evaluated. $PM_{2.5}$ concentrations were modeled to evaluate the potential impact of exposure to exhaust produced from all traffic on Highway 101 near the sites. The same basic modeling approach that was used for assessing TAC impacts was used in the modeling of $PM_{2.5}$ concentrations. The assessment involved, first, calculating $PM_{2.5}$ emission rates from traffic traveling near the sites. Then, dispersion modeling using emission factors and traffic volumes was applied. The dispersion model provides estimated annual $PM_{2.5}$ concentrations. The dispersion modeling of traffic using the CAL3QHCR model was conducted in the same manner as the TAC modeling. **Figures 4.2-3** and **4.2-5** show the annual maximum $PM_{2.5}$ concentration for receptors at the Sares Regis and Raintree sites, respectively.

Hazard Index

The BAAQMD Screening Google Earth Highway Screening Analysis Tool indicates that the hazard index for acute and chronic exposure to Highway 101 emissions would be less than 0.1 for both sites, which is well below the BAAQMD threshold of 1.0. No further analysis of acute or chronic exposures was conducted.

Sares Regis Site Computed Cancer Risk and Modeled $PM_{2.5}$ Concentrations

The maximum excess lifetime cancer risk for the Sares Regis site is 29.3 per million. Under the Applicant Proposed Scenario, excess cancer risk would range from 20.1 to 10.0 per million. For the Sares Regis site, cancer risk would be above 10 in one million for all except the units on the very northeast portion of the site. Exposures above 10 per million are considered significant. The maximum annual $PM_{2.5}$ concentration at the site would be 0.63 $\mu g/m^3$. Under the Applicant Proposed Scenario, annual $PM_{2.5}$ concentration at the site would range from 0.63 to 0.21$\mu g/m^3$. Annual $PM_{2.5}$ concentrations in excess of 0.3 $\mu g/m^3$ would extend about 64 meters (210 feet) from the edge of the freeway across the project site (measured from the nearest travel lane). Figure 4.2-3 shows modeled annual $PM_{2.5}$ concentrations at the Sares Regis site.

Raintree Computed Cancer Risk and Modeled $PM_{2.5}$ Concentrations

The maximum excess lifetime cancer risk for the Raintree site is 34.9 per million. Under the Applicant Proposed Scenario, excess cancer risk would range from 26.3 to 5.3 per million. For the Raintree site, cancer risks would be above 10 in one million at locations less than about 110 meters (360 feet) from the edge of the near freeway lane. Exposures above 10 per million are considered significant. The maximum annual $PM_{2.5}$ concentration at the site would be 0.75 $\mu g/m^3$.

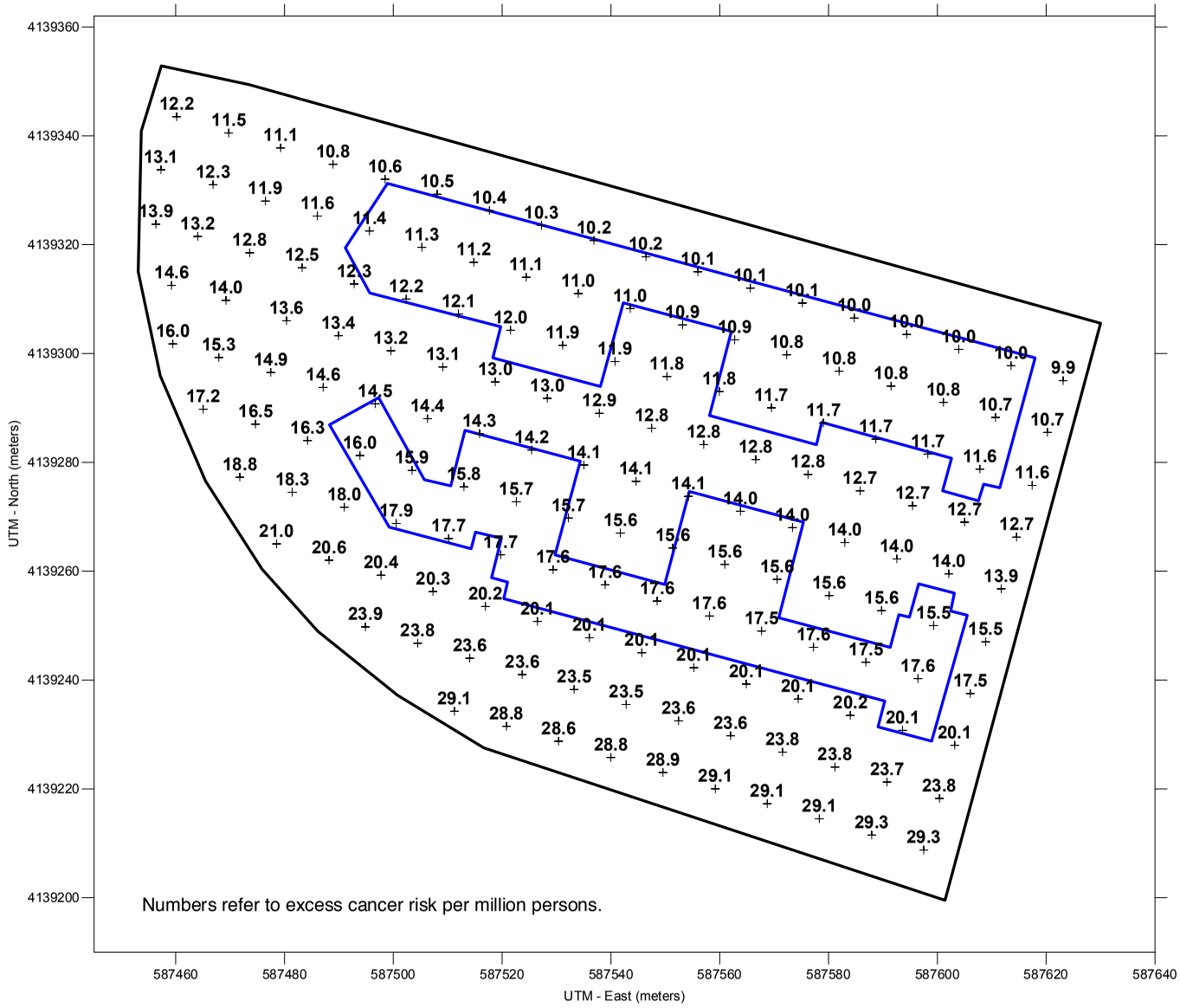

Figure 4.2-2

SOURCE: Illingworth & Rodkin, Inc., 2013

SARES REGIS EXCESS CANCER RISK FROM U.S. 101 HIGHWAY TRAFFIC

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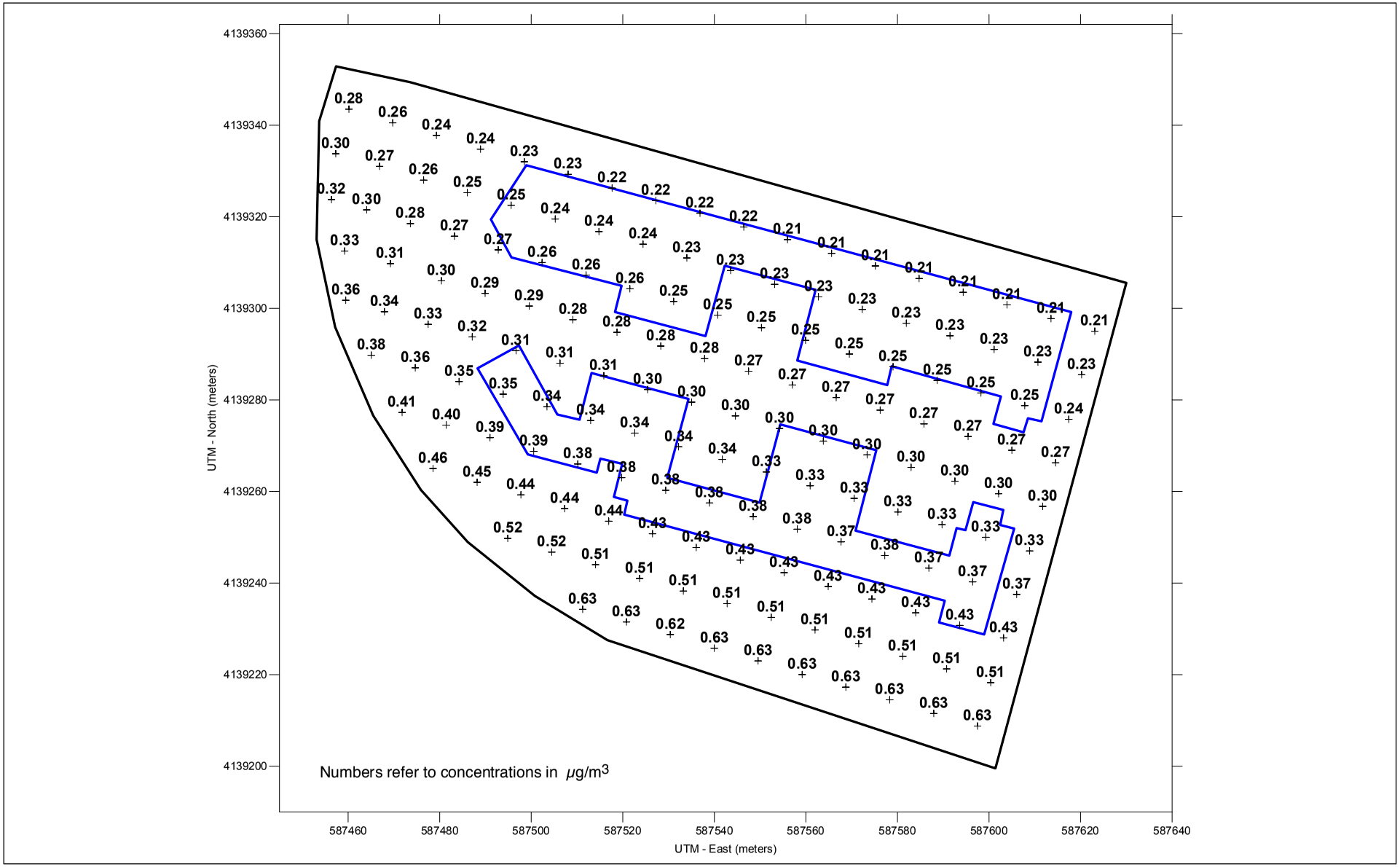

Figure 4.2-3

SOURCE: Illingworth & Rodkin, Inc., 2013

SARES REGIS ANNUAL PM2.5 FROM U.S. 101 HIGHWAY TRAFFIC

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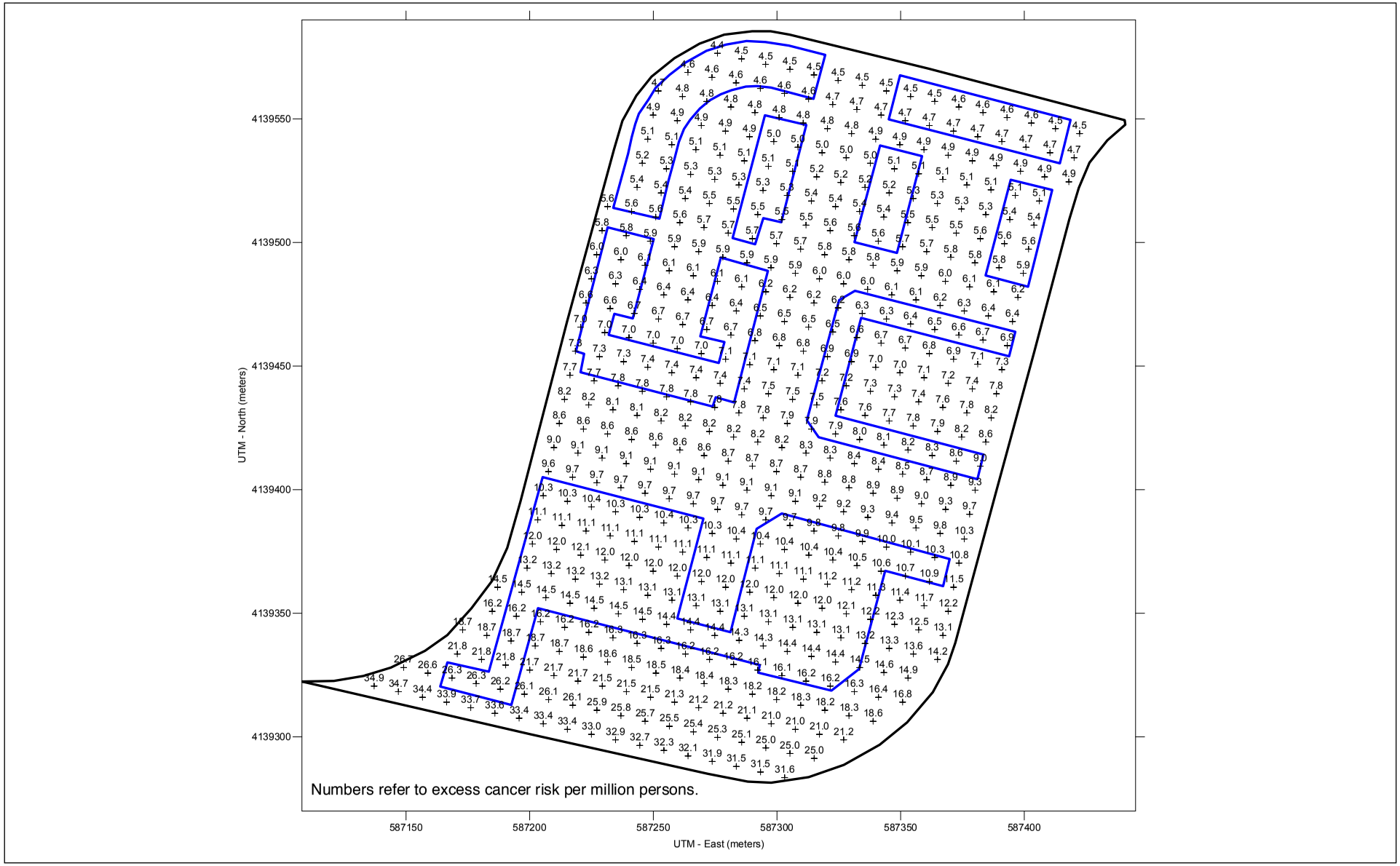

Figure 4.2-4

SOURCE: Illingworth & Rodkin, Inc., 2013

RAINTREE EXCESS CANCER RISK FROM U.S. 101 HIGHWAY TRAFFIC

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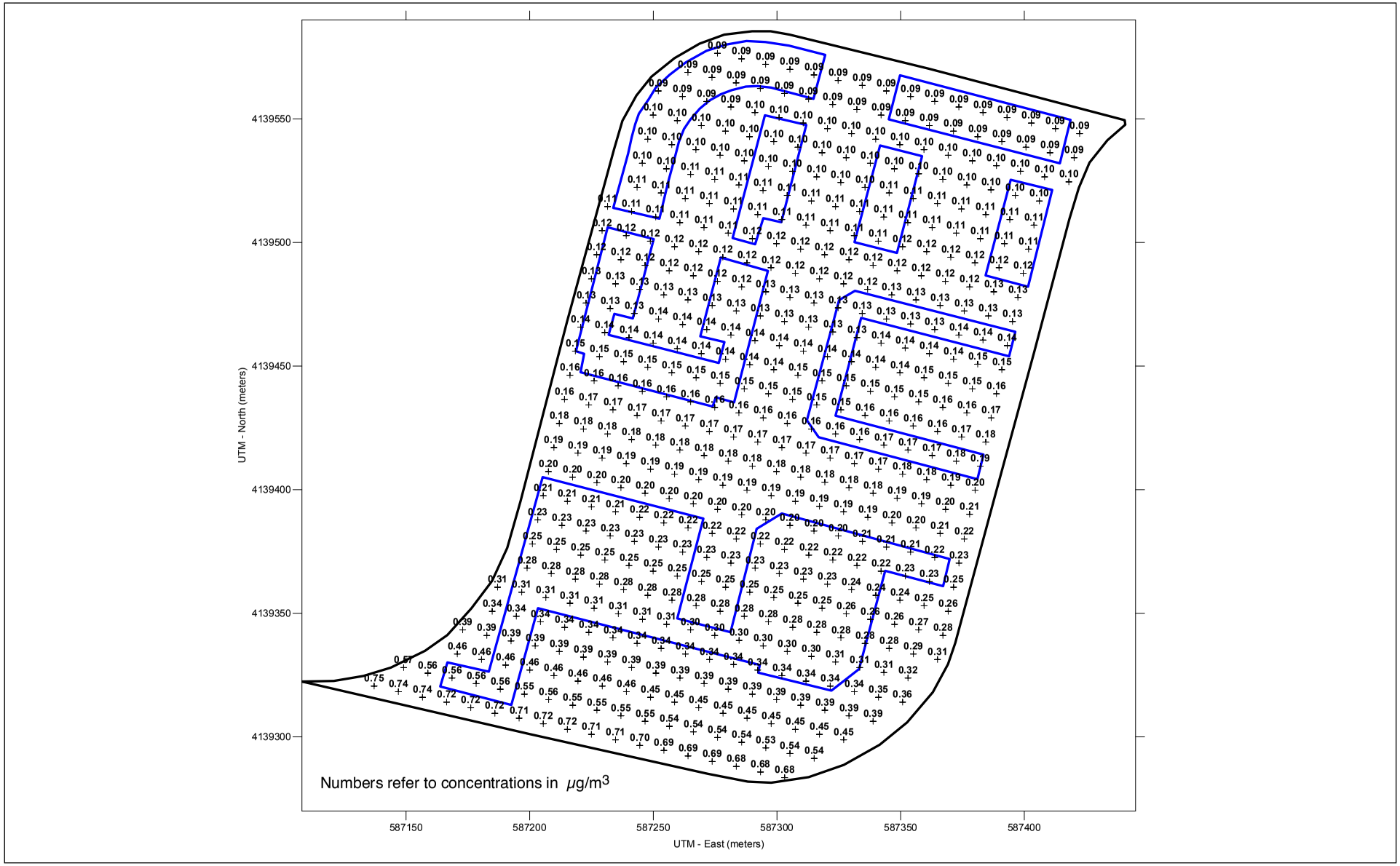

Figure 4.2-5

SOURCE: Illingworth & Rodkin, Inc., 2013

RAINTREE ANNUAL PM2.5 FROM U.S. 101 HIGHWAY TRAFFIC

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Under the Applicant Proposed Scenario, annual $PM_{2.5}$ concentration at the site would range from 0.56 to 0.09µg/m^3.

Exposures above 0.3µg/m^{3}would be considered significant. At the Raintree site, annual $PM_{2.5}$ concentrations in excess of 0.3 µg/m^3 would extend about 58 meters (190 feet) from the edge of the freeway across the project site (measured from the nearest travel lane). Figure 4.2-5 shows modeled annual $PM_{2.5}$ concentrations at the Raintree site.

Effects of the Vegetation Barrier

It should be noted that the cancer risks and $PM_{2.5}$ concentrations discussed above and shown in Figures 4.2-2 through 4.2-5, conservatively, do not reflect the potential effects of the intervening vegetation between Highway 101 and the project sites. There is a substantial section of vegetation along the freeway adjacent to both sites. This area of vegetation, comprised of tree layers of varying height and shrubs, is about 6 meters (20 feet) in depth and about 5 to 6 meters (15 to 20 feet) high.

BAAQMD CEQA Air Quality Guidelines recommend, among other mitigation measures, that for projects that propose sensitive receptors near sources of DPM (e.g., freeways, major roadways, rail lines, and rail yards), tiered plantings of trees such as redwood, deodar cedar, live oak, and oleander to reduce DPM exposure should be considered. This recommendation is based on a laboratory study conducted by U.C Davis (Fujii, et al., 2008) that measured the removal rates of $PM_{2.5}$ passing through leaves and needles of vegetation. Particles were generated in a wind tunnel and a static chamber and passed through vegetative layers at low wind velocities. Redwood, deodar cedar, live oak, and oleander were tested. The results indicate that all forms of vegetation were able to remove 65 to 85 percent of very fine particles at wind velocities below 1.5 meters per second (approximately 3 miles per hour [mph]), with redwood and deodar cedar being the most effective. Even greater removal rates were predicted for ultra-fine particle matter (i.e., aerodynamic resistance diameter of 0.1 micrometer or less).

Trees and other vegetation appear to act as efficient filters of airborne particulates because of their large size, high surface to volume ratio of foliage, and frequently hairy or rough leaf and bark surfaces. Interception and retention of particles occur as winds carry them through the vegetation (Chakre, 2006). In addition to trees, hedges can act as an effective filter mechanism for particulate matter. In a study in England (Tiwary, et al., 2008), it was found that a 2.2-meter-tall Hawthorne hedge collected PM_{10} with an average collection efficiency of 34 percent at wind speeds of 1.8 to 4.8 meters per second.

Effects of Barriers or Sound Wall

The applicant proposals for both sites include parking structures that would buffer much of the sites from freeway traffic. The project sites would include parking structures along the Highway 101 boundary. The effect of the structures in reducing air pollutant exposures cannot be evaluated, since there are no modeling techniques that account for such structures. There are studies that have included measurements behind sound walls that indicate lower concentrations due to the presence of the obstruction/barrier. A combination of sound walls and vegetation has been shown to disperse pollutants more consistently and to greater distances than either walls or vegetation

alone, with up to about a 60-percent reduction in near roadway levels (CARB, 2012).However, the evaluation presented in this report did not address any of the specific peer-reviewed studies that have been conducted.

Improvements could be made to the vegetative barrier to increase the density and provide a continuous barrier along the southern, eastern, and western boundaries. If it is assumed that an improved vegetation barrier between the highway and the project sites, combined with the parking garage structures, could remove 30 percent of the roadway DPM. Both sites include some possible residences at positions that would be mostly unaffected by the combination of the vegetative barriers and parking structures. However, many of the proposed residences in the applicant development plans would benefit from the vegetation and parking structures, reducing the increased cancer risk at units behind the parking structures to 14 per million or lower for most of the Sares Regis site (applicant's proposal) and 18.4 per million or lower for much of the Raintree site (applicant's proposal).

Mechanical Ventilation with Filtration

The BAAQMD CEQA Air Quality Guidelines recommend as mitigation that projects install and maintain air filtration systems of fresh air supply. These systems should be installed on either an individual unit-by-unit basis, with individual air intake and exhaust ducts ventilating each unit separately, or through a centralized building ventilation system. The ventilation system should be certified to achieve certain effectiveness.

The U.S. EPA reports particle size removal efficiency for filters rated MERV13 of 90 percent for particles in the size range of 1 to 3 µm and less than 75 percent for particles 0.3 to 1 µm (American Society of Heating, Refrigerating and Air Conditioning Engineers, 2007 and U.S. EPA, 2009). MERV16 filters are listed to have removal efficiency for those particles (i.e., 0.3 to 3 µm) of 90 percent or greater. Recent studies by the South Coast Air Quality Management District indicate that MERV13 filters could achieve reductions of about 60 percent for ultra-fine particles and about 35 percent for black carbon, while MERV16 filters exceeded 85 percent (SCAQMD, 2009).

In 2012, CARB compiled a synthesis of the status of potential mitigation concepts to reduce exposure to nearby traffic air pollution (CARB, 2012). Because mechanical ventilation has not been used in residential buildings until recently, there has been limited assessment of its impact on entry of particles and other pollutants into homes. CARB-reviewed studies of homes and schools have shown that high-efficiency filtration in mechanical ventilation systems can be effective in reducing levels of incoming outdoor particles. They noted that one study of residences in Northern California found that the homes with active filtration in a mechanical system had a notably lower portion of indoor particles from outdoors when the systems were on (filtration active) than when they were turned off (no filtration). In another study reviewed by CARB that included modeling study of Korean residential units with mechanical ventilation, filters rated lower than MERV7 were insufficient for reducing contaminants that enter through the ventilation filter; the study concluded that filters should exceed MERV11. The CARB review also notes that in a school pilot study, a combination of MERV16 filters used as a replacement for the normal panel filter in the ventilation system and in a separate filtration unit reduced indoor levels of outdoor-generated black carbon, ultrafine particles and $PM_{2.5}$ by 87 percent to 96 percent in three Southern California schools (SCAQMD, 2009). Use of the MERV16 panel filter alone in the HVAC system achieved average particle reductions of nearly 90 percent. Another study reviewed by CARB found indoor submicron

particle counts in a Utah school were reduced to just one-eighth of the outdoor levels in a building with a mechanical system using a MERV8 filter.

TAC Impacts from Stationary Sources Near Project Sites

Permitted stationary sources of air pollution near the project site were identified using the BAAQMD's *Stationary Source Risk and Hazard Analysis Tool*. This mapping tool uses Google Earth to identify the location of stationary sources and their estimated risk and hazard impacts. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from diesel generators and gasoline stations were adjusted for distance based on BAAQMD distance adjustment factors. All of the sources within 1,000 feet of the project sites were identified to have maximum reported risks or $PM_{2.5}$ concentrations below the BAAQMD thresholds. This tool identified sources that could affect the project sites.

Plant 8251, which includes an emergency back-up generator located at 1139 Karstad Drive operated by Aixtron, Inc., is about 700 feet northwest of the Raintree project site. The BAAQMD was contacted, since the preliminary analysis indicates cancer risk from the source greater than 10 per million. Following BAAQMD instructions, the BAAQMD Toxic Inventory 2009 emissions data were used to predict screening risk. This procedure used the BAAQMD Risk and Hazard Screening Calculator and the distance multipliers. This calculator uses emissions data for each TAC to predict risk. This calculator indicates that nearly all of the risk from the facility is associated with the diesel generator. Therefore, the BAAQMD's Diesel Distance Multiplier was applied to predict screening risk at the distance where a sensitive receptor is located. Use of this procedure (and adjusted for the 700-foot distance) indicates an excess cancer risk of 1.0 per million and no $PM_{2.5}$ impacts or hazards well below the thresholds at the portion of the site closest to this source.

Plant 18976 at 444 Toyama Drive is a data center, operated by Switch and Data CA Eleven LLC, which includes four emergency back-up diesel generators located. This source is permitted to operate by the BAAQMD and includes emissions standards and a maximum number of hours the source can operate (i.e., no more than 50 hours annually). The BAAQMD *Stationary Source Risk and Hazard Analysis Tool* (BAAQMD, 2012b) indicates that screening risk levels are above 10 in one million at the Raintree site. However, annual $PM_{2.5}$ concentrations would be below 0.3 $\mu g/m^3$.

Because screening excess cancer risks are above 10 in one million at the Raintree site, a refined analysis of this source was conducted using facility emissions data obtained from the BAAQMD (BAAQMD, 2013a and 2013b). The generators are situated about 260 feet northwest of the Raintree site. The 2012 source emissions data for this facility were obtained from the BAAQMD (see Appendix D). According to the BAAQMD inventory, these generators each emit 7.25 pounds of DPM annually. The emissions from these generators were modeled using U.S. EPA's ISCST3 dispersion to predict concentrations of DPM at existing residences at the project site. The ISCST3 modeling used a single point source with an exhaust stack height of 15 feet to represent the four generators since the generators are in close proximity to each other. The total emissions from all generators (29 pounds per year) were modeled as being emitted from this source. Emission source parameters for the generators were assumed to be typical of 2,000-megawatt diesel generators. Since the generators are adjacent to the data center building, the effects of building downwash were included in the modeling. Concentrations were modeled at the grid of receptors that represent potential new residences at the Raintree site. The Sares Regis site is located over 1,000 feet from this facility and therefore was not included in the analysis. Corresponding excess

cancer risks were computed based on the maximum modeled concentrations and the most recent cancer risk calculation methods recommended by the BAAQMD (BAAQMD, 2010a). This source would result in a maximum excess cancer risk of 8.5 per million at the Raintree site. As a result, this source has a less-than-significant impact.

Summary of Impacts

Table 4.2-10 summarizes the predicted community risk levels at the Sares Regis project site and **Table 4.2-11** summarizes the predicted community risk levels at the Raintree project site. Both maximum single- and cumulative-source levels are reported. The predicted mitigated community risk levels are reported in **Table 4.2-10a** for the Sares Regis project site and **Table 4.2-11a** for the Raintree project site. Effects of **Mitigation Measure AIR-4**, described below, are reflected in the mitigated community risk levels reported in these tables. Note that the cumulative risk levels presented in the tables are~~is~~ the sum of the maximum levels. The actual cumulative risk would be lower because the location of the maximum levels would occur at different locations across the project sites.

Sares Regis Applicant Proposed Scenario. Emissions from Highway 101 traffic would cause significant excess cancer risk throughout the entire site (see Figure 4.2-2). Significant annual $PM_{2.5}$ concentrations (i.e., greater than 0.3 µg/m^3) occur across portions of the Sares Regis site.

The portion of the site affected by significant annual $PM_{2.5}$ concentrations would extend about 61 meters (200 feet) from the edge of the highway onto the site. (See Figure 4.2-3 to identify portions of site above 0.3 µg/m^3.)

Sares Regis Full Buildout Scenario. See above discussion.

Raintree Applicant Proposed Scenario. Emissions from Highway 101 traffic would cause significant excess cancer risk and annual $PM_{2.5}$ concentrations to occur across portions of the Raintree site. The portion of the site affected by significant excess cancer risk would extend about 104 meters (340 feet) from the edge of the highway onto the site (see Figure 4.2-4 to identify portions of site above 10.0 per million). The portion of the site affected by significant annual $PM_{2.5}$ concentrations would extend about 70 meters (230 feet) from the edge of the highway onto the site. (See Figure 4.2-5 to identify portions of site above 0.3 µg/m^3.)

Raintree Full Buildout Scenario. See above discussion. In addition, annual $PM_{2.5}$ concentrations from cumulative sources would exceed the significance threshold of 0.8 µg/m^3.

> *Mitigation Measure AIR-4: The two projects shall include the following measures to minimize long-term toxic air contaminant (TAC) exposure for new residences:*
>
> 1. *Design buildings and sites to limit exposure from sources of TAC and fine particulate matter ($PM_{2.5}$) emissions. The site layout shall locate windows and air intakes as far as possible from Highway 101 traffic lanes and provide additional tree plantings along the highway edge to maintain a uniform and continuous vegetative barrier per Bay Area Air Quality Management District (BAAQMD) recommended plantings. Any modifications to the site design shall incorporate buffers between residences and the freeway.*

Table 4.2-10 Unmitigated Community Risk to Project Sensitive Receptors – Sares Regis Site

Source	Cancer Risk[a]	Chronic Hazard	Acute Hazard	$PM_{2.5}$ Concentration (µg/m3)
Sares Regis Site Applicant Proposed Scenario				
Highway 101 Traffic	20.1[b]	0.09[b]	0.09[b]	0.43[b]
North Fair Oaks Avenue	3.9[c]	<0.03[c]	<0.03[c]	0.15[c]
Cumulative Sources	24.0	<0.12	<0.12	0.58
Sares Regis Site Full Buildout Scenario				
Highway 101 Traffic	29.3[b]	0.13[b]	0.13[b]	0.63[b]
North Fair Oaks Avenue	3.9[c]	<0.03[c]	<0.03[c]	0.15[c]
Cumulative Sources	33.2	<0.16	<0.16	0.78

Notes: $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less, µg/m3 = micrograms per cubic meter.
[a] Cancer risk reported in excess cases per million.
[b] Modeled using Highway 101 traffic, EMFAC2011 with Mineta San Jose International Airport meteorological data.
[c] Data obtained from BAAQMD Roadway Analysis Tables. These tables indicate acute and chronic hazard indexes are well below 1.0.
Source: Illingworth & Rodkin, Inc., 2013.

Table 4.2-10a Mitigated Community Risk to Project Sensitive Receptors – Sares Regis Site

Source	Cancer Risk[a]	Chronic Hazard	Acute Hazard	$PM_{2.5}$ Concentration (µg/m3)
Sares Regis Site Applicant Proposed Scenario (MERV13 Filtration System)				
Highway 101 Traffic	8.0[b]	0.04[b]	0.04[b]	0.17[b]
North Fair Oaks Avenue	1.6[c]	<0.01[c]	<0.01[c]	0.06[c]
Cumulative Sources	9.6	<0.05	<0.05	0.23
Sares Regis Site Full Buildout Scenario (MERV13 and MERV16 Filtration System)				
Highway 101 Traffic	5.9[b]	0.03[b]	0.03[b]	0.13[b]
North Fair Oaks Avenue	0.8[c]	<0.01[c]	<0.01[c]	0.03[c]
Cumulative Sources	6.6	<0.03	<0.03	0.16

Notes: $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less, µg/m3 = micrograms per cubic meter.
[a] Cancer risk reported in excess cases per million.
[b] Modeled using Highway 101 traffic, EMFAC2011 with Mineta San Jose International Airport meteorological data.
[c] Data obtained from BAAQMD Roadway Analysis Tables. These tables indicate acute and chronic hazard indexes are well below 1.0.
Source: Illingworth & Rodkin, Inc., 2013.

Table 4.2-11 Unmitigated Community Risk to Project Sensitive Receptors – Raintree Site

Source	Cancer Risk[a]	Chronic Hazard	Acute Hazard	$PM_{2.5}$ Concentration (µg/m3)
Raintree Site Applicant Proposed Scenario				
Highway 101 Traffic	26.3[b]	0.13[b]	0.13[b]	0.56[b]
North Fair Oaks Avenue	3.9[c]	<0.03[c]	<0.03[c]	0.15[c]
Plant 8251, Aixtron (1139 Karstad Drive)	1.0[d]	0.01[d]	0.01[d]	0.00[d]
Plant ~~18796~~ 18976, Switch and Data CA Eleven (444 Toyama Drive)	<8.5[e]	<0.1[f]	<0.1[f]	<0.08[f]
Cumulative Sources	26.6	<0.27	<0.27	0.66
Raintree Site Full Buildout Scenario				
Highway 101 Traffic	34.9[b]	0.15[b]	0.15[b]	0.75[b]
North Fair Oaks Avenue	3.9[c]	<0.03[c]	<0.03[c]	0.15[c]
Plant 8251, Aixtron (1139 Karstad Drive)	1.0[d]	0.01[d]	0.01[d]	0.00[d]
Plant ~~18796~~ 18976, Switch and Data CA Eleven (444 Toyama Drive)	≤8.5[e]	<0.1[f]	<0.1[f]	<0.08[f]
Cumulative Sources	48.3	<0.29	<0.29	0.98

Notes: $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less, µg/m3 = micrograms per cubic meter.
[a] Cancer risk reported in excess cases per million.
[b] Modeled using Highway 101 traffic, EMFAC2011 with Mineta San Jose International Airport meteorological data.
[c] Data obtained from BAAQMD Roadway Analysis Tables. These tables indicate acute and chronic hazard indexes are well below 1.0.
[d] Obtained from BAAQMD SSIF Request (BAAQMD, 2013a).
[e] Obtained from BAAQMD SSIF Request (BAAQMD, 2013b) and modeled using ISCST3 with BAAQMD source data and Mineta San Jose International Airport meteorological data.
[f] Based on BAAQMD's Stationary Source Risk & Hazard Analysis Tool.
Source: Illingworth & Rodkin, Inc., 2013.

2. *Install air filtration in residential or other buildings that would include sensitive receptors that have predicted $PM_{2.5}$ concentrations above 0.3 micrograms per cubic meter (µg/m^3) or excess lifetime cancer risk of 10.0 per million or greater. Air filtration devices shall be rated MERV13 or higher. To ensure adequate health protection to sensitive receptors, a ventilation system shall meet the following minimal design standards (Department of Public Health, City and County of San Francisco, 2008):*
   - *A MERV13 or higher rating;*
   - *At least one air exchange(s) per hour of fresh outside filtered air;*
   - *At least four air exchange(s) per hour recirculation; and*
   - *At least 0.25 air exchange(s) per hour in unfiltered infiltration.*

Table 4.2-11a Mitigated Community Risk to Project Sensitive Receptors – Raintree Site

Source	Cancer Risk[a]	Chronic Hazard	Acute Hazard	$PM_{2.5}$ Concentration (µg/m3)
Raintree Site Applicant Proposed Scenario (MERV13 and MERV16 Filtration System)				
Highway 101 Traffic	5.3[b]	0.03[b]	0.03[b]	0.11[b]
North Fair Oaks Avenue	0.8[c]	<0.01[c]	<0.01[c]	0.03[c]
Plant 8251, Aixtron (1139 Karstad Drive)	0.2[d]	0.00[d]	0.00[d]	0.00[d]
Plant ~~18796~~ 18976, Switch and Data CA Eleven (444 Toyama Drive)	<1.7[e]	<.02[f]	<0.02[f]	<0.02[f]
Cumulative Sources	<7.9	<0.05	<0.05	0.16
Raintree Site Full Buildout Scenario (MERV13 and MERV16 Filtration System)				
Highway 101 Traffic	7.0[b]	0.03[b]	0.03[b]	0.15[b]
North Fair Oaks Avenue	0.8[c]	<0.01[c]	<0.01[c]	0.03[c]
Plant 8251, Aixtron (1139 Karstad Drive)	0.2[d]	0.00[d]	0.00[d]	0.00[d]
Plant ~~18796~~ 18976, Switch and Data CA Eleven (444 Toyama Drive)	1.7[e]	<0.0[f]	<0.0[f]	<0.02[f]
Cumulative Sources	<9.7	<0.06	<0.06	0.20

Notes: PM2.5 = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less, µg/m3 = micrograms per cubic meter.
[a] Cancer risk reported in excess cases per million.
[b] Modeled using Highway 101 traffic, EMFAC2011 with Mineta San Jose International Airport meteorological data.
[c] Data obtained from BAAQMD *Roadway Analysis Tables*. These tables indicate acute and chronic hazard indexes are well below 1.0.
[d] Obtained from BAAQMD SSIF Request (BAAQMD, 2013a).
[e] Obtained from BAAQMD SSIF Request (BAAQMD, 2013b) and modeled using ISCST3 with BAAQMD source data and Mineta San Jose International Airport meteorological data.
[f] Based on BAAQMD's Stationary Source Risk & Hazard Analysis Tool.
Source: Illingworth & Rodkin, Inc., 2013.

As part of implementing this measure, an ongoing maintenance plan for the buildings' heating, ventilation, and air conditioning (HVAC) air filtration system shall be required. Recognizing that emissions from air pollution sources are decreasing, the maintenance period shall last as long as significant excess cancer risk or annual $PM_{2.5}$ exposures are predicted. Subsequent studies could be conducted to identify the ongoing need for the ventilation systems as future information becomes available.

3. *Ensure that the lease agreement and other property documents (1) require cleaning, maintenance, and monitoring of the affected buildings for air flow leaks; (2) include assurance that new owners and tenants are provided information on the ventilation system; ~~and~~ (3) include provisions that fees associated with owning or leasing a unit(s) in the building include funds for cleaning, maintenance, monitoring, and replacements of the filters, as needed~~.~~; and (4) provide information regarding the ventilation/filtration systems and importance of keeping windows and doors closed to maximize the efficiency of the system.*

4. *Consider phasing developments located within 101 meters (330 feet) of Highway 101 to avoid significant excess cancer risks and required installation of filtered ventilation systems (described above). Note that new United States Environmental Protection Agency (U.S. EPA) engines standards combined with California Air Resources Board (CARB) rules and regulations will reduce on-road emissions of diesel particulate matter (DPM) and $PM_{2.5}$ substantially, especially after 2014. Any effects of phasing the project shall be verified by an authorized air pollutant consultant approved by the City.*

5. *Require that, prior to building occupancy, an authorized air pollutant consultant approved by the City shall verify the installation of all necessary measures to reduce toxic air contaminant (TAC) exposure.*

   A properly maintained vegetative barrier could reduce particulate concentrations, including DPM, by an estimated 30 percent. Combined with the vegetation barrier along the freeway, a properly installed and operated ventilation system with MERV13 air filters may reduce $PM_{2.5}$ concentrations from DPM mobile and stationary sources by approximately 70 percent indoors when compared to outdoors. A ventilation system with MERV16 filters could achieve reductions of 90 percent. The air intake for these units should be located as far away as possible from Highway 101. The overall effectiveness calculations take into consideration time spent outside and the outdoor exposure of each affected unit. The U.S. EPA reports that people, on average, spend 90 percent of their time indoors (US EPA 2001). The overall effectiveness calculations should take into effect time spent outdoors. Assuming 2 hours of outdoor exposure plus 1 hour of open windows (calculated as outdoor exposure) per day, the overall effectiveness of filtration systems would be about 60 percent for MERV13 systems and about 80 percent for MERV16 systems.

   A ventilation system with MERV13 filtration would be necessary to reduce cancer risk to less-than-significant levels for areas where cancer risk is between 10 and 25.0 per million. A more efficient filtration system would be required for cancer risks that exceed 25.0 per million. A ventilation system with MERV16 filters would result in cancer risk of less than 10 per million where outdoor cancer risk is predicted to be 50.0 per million or less. A system with MERV14 or MERV15 could also be used, but those systems were not evaluated.

   $PM_{2.5}$ concentrations would also be reduced with the ventilation system that uses a MERV13 filter or greater. Maximum annual $PM_{2.5}$ concentrations of $0.75 \mu g/m^3$ or less could be mitigated using ventilation systems with MERV13 filters.

   In summary, residential units where excess cancer risk is 10 to 25.0 chances per million would require MERV13 or higher filtration and residences with higher excess cancer risk would require MERV16 filters to mitigate levels to less-than-significant levels. Mitigating for excess cancer risk would mitigate significant annual $PM_{2.5}$ concentrations to less-than-significant levels. Figures 4.2-4 and 4.2-5 show the unmitigated exposure that can be used as a guide to identify the level of mitigation required.

The above measures would reduce the potential air quality impact to a less-than-significant level. (LTS)

- Applies to Sares Regis Applicant Proposed Scenario: ☒
- Applies to Sares Regis Full Buildout Scenario: ☒

- Applies to Raintree Applicant Proposed Scenario: ☒
- Applies to Raintree Full Buildout Scenario: ☒

Impact AIR-5: Existing sensitive receptors could be exposed to substantial pollutant concentrations during construction of the projects. (S)

The proposed projects would have emissions of fugitive dust and exhaust emissions during the construction period. The projects do~~es~~ not include long-term operation emissions of TACs that could affect nearby sensitive receptors.

Construction activity for each project is anticipated to include ~~abatement and~~ demolition of existing buildings, grading and parking garage excavation, building construction, paving, ~~and~~ application of architectural coatings, and installation ~~construction~~ of the 10-inch-diameter sewer main upsizing along North Fair Oaks Avenue. Exhaust emissions both on-site and off-site from these activities were computed using the ~~OFFROAD~~ CalEEMod model ~~and reported~~ as described under Impact AIR-2 above. During demolition, grading, and excavation activities, dust would be generated. Most of the dust would result during grading activities. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed at any given time, amount of activity, soil conditions, and meteorological conditions. Typical winds during late spring through summer are from the north. Nearby land uses, particularly the apartments located adjacent to the north end of the Raintree project site, could be adversely affected by dust generated during construction activities. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if best management practices are employed to reduce these emissions.

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. As indicated under Impact AIR-2, these exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Since existing residences are located immediately adjacent to the project, a refined health risk assessment of the construction activity was conducted that evaluated emissions of DPM. Emissions and dispersion modeling was conducted to predict the off-site concentrations resulting from project construction, so that lifetime cancer risks could be predicted. The locations of the construction modeling sources, receptors used, and residential and school MEIs from project construction are shown in **Figure 4.2-6**.

There are existing residential apartment buildings located near the north and west edges of the Raintree site. Single-family residences are located to the north and east of the Sares Regis site. A health risk assessment of the project construction activities was conducted that evaluated potential health effects of sensitive receptors from construction emissions of DPM. A dispersion model was used to predict the off-site DPM concentrations resulting from project construction so that lifetime cancer risks could be predicted.

On-site construction period diesel exhaust emissions were computed using the CalEEMod model, which includes emission factors from the CARB OFFROAD model for off-road construction equipment and from the EMFAC2011 model for emissions from trucks (e.g., haul trucks, water trucks, concrete trucks, and vendor trucks). The number and types of construction equipment and diesel vehicles, along with the anticipated length of their use, for different phases of construction were based on site-specific construction activity schedules (see Appendix D). A description of the

construction emissions is contained in the discussion for Impact AIR-~~1~~2. ~~All of the construction equipment was assumed to be from model year 2006, which is representative of U.S. EPA Tier 2 equipment.~~ Demolition trips, haul truck trips, and cement truck trips were based on the volumes provided by the applicants. ~~Haul truck trips were based on the amount of material to be hauled away during demolition of the existing structures, concrete truck trips were based on the amount of concrete needed by the project, and~~. Worker and vendor trips were estimated ~~using~~ based on the CalEEMod model default rate for each project. Construction at the Sares Regis project site is anticipated to occur over an approximate 22-month period year period (January 2014 to October 2015) and construction at the Raintree project site is anticipated to occur over a 2-year period (September 2014 to September 2016). The projected construction schedules for the two sites are shown in Appendix D. The CalEEMod model run for on- and near-site emissions is ~~DPM emission calculations are~~ also provided in Appendix D.

The U.S. EPA ISCST3 dispersion model was used to predict concentrations of DPM at existing residences surrounding the project sites. For each project construction site, the ISCST3 modeling included one area source to represent the on-site construction activities and a series of line sources (modeled as a series of volume sources along a path) to represent the off-site truck travel routes of the construction-related trucks. On-site truck travel emissions were included in the area source emissions. An emission release height of 6 meters (about 18 feet) was used for the construction area source. The elevated source height reflects the height of the equipment exhaust pipes and buoyancy of the exhaust plume. For off-site truck travel, trucks were assumed to travel along North Fair Oaks Avenue and on East Weddell Drive to the sites. Model receptors were placed to represent locations of the existing residences near each of the sites. Receptor heights were modeled at 1.8 meters (almost 6 feet) and 4.85 meters (almost 16 feet) above ground level to represent the first and second floor levels of residences. Emissions were modeled as occurring daily between 7:00 AM to 4:00 PM when a majority of the construction activity involving equipment usage would occur.[3] The model used a 5-year data set of hourly meteorological data (1991 to 1995) from the Mineta San Jose International Airport, the same meteorological data used for the traffic modeling, described previously.[4] Annual DPM concentrations from construction activities were predicted for 2014 through 2016.

Increased lifetime cancer risks were calculated using the maximum modeled annual concentration and BAAQMD recommended risk assessment methods for both a child exposure (third trimester through 2 years of age) and an adult exposure. Since the modeling was conducted assuming emissions occurred 365 days per year, the default BAAQMD exposure period of 350 days per year was used. It was conservatively assumed that infant and child exposures would occur at residences throughout the entire construction period. Appendix D includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

Project-Specific Construction Health Risks ~~by Scenario~~

Sares Regis Applicant Proposed Scenario. Results of this assessment indicate that, without mitigation or a construction plan to reduce on-site exhaust emissions, the maximum construction

[3] Note that while construction may occur from 7:00 AM to 6:00 PM, most equipment emissions are expected to occur between 7:00 AM and 4:00 PM.

[4] There is also a meteorological monitoring station in Alviso. Meteorological data from the San Jose International Airport was used, because the airport is in a more urban setting similar to the project site and the distances from the project site to both stations were similar.

residential child cancer risk would be ~~11.4~~ 19.5 in one million and a residential adult cancer risk of ~~0.6~~ 1.0 in one million. While the residential adult cancer risk is below the BAAQMD's threshold of 10 in one million excess cancer cases per million, the increased cancer risk for a residential child exposure is greater than the significance threshold. The maximum annual $PM_{2.5}$ concentrations would be ~~0.13~~ 0.23 µg/m^3, which would be below the significance threshold of 0.3 µg/m^3. Associated non-cancer hazards would be well below BAAQMD thresholds for DPM, with a hazard index computed as ~~0.026~~ 0.03. This hazard index is much lower than the BAAQMD significance criterion of a hazard index greater than 1.0. The receptor that would have the maximum child cancer risk is shown in **Figure 4.2-6**. Because predicted child cancer risk exceeds 10.0 per million, the Sares Regis project would have a *significant impact* with respect to community risk caused by construction activities.

Sares Regis Full Buildout Scenario. See above discussion. The construction health risks cannot be identified for this scenario, since there are no detailed construction plans. However, they are anticipated to be similar to, but slightly greater than, the Applicant Proposed Scenario. A *significant impact* with respect to community risk caused by construction activities would occur.

Raintree Applicant Proposed Scenario. Results of this assessment indicate that, without mitigation or a construction plan to reduce on-site exhaust emissions, the maximum construction residential child cancer risk would be ~~19.0~~ 23.2 in one million and a residential adult cancer risk of ~~1.0~~ 1.4 in one million. While the residential adult cancer risk is below the BAAQMD's threshold of 10 in one million excess cancer cases per million, the increased cancer risk for a residential child exposure is greater than the significance threshold. The maximum annual $PM_{2.5}$ concentrations would be ~~0.22~~ 0.28 µg/m^3, which would be below the significance threshold of 0.3 µg/m^3. Associated non-cancer hazards would be well below the significance hazard index threshold of 1.0 for DPM, with a hazard index computed as ~~0.043~~ 0.03. The receptor that would have the maximum child cancer risk is shown in **Figure 4.2-6**. Because predicted child cancer risk exceeds 10.0 per million, the Raintree project would have a *significant impact* with respect to community risk caused by construction activities.

Raintree Full Buildout Scenario. See above discussion. The construction health risks cannot be identified for this scenario, since there are no detailed construction plans. However, they are anticipated to be similar, but slightly greater than the Applicant Proposed Scenario. A *significant impact* with respect to community risk caused by construction activities would occur.

~~*Impact of Applicant Proposed Scenarios*~~

~~Results of this assessment indicate that, without mitigation or a construction plan to reduce on-site exhaust emissions, the maximum construction residential child cancer risk resulting from construction of both Applicant Proposed Scenarios would be 19.7 in one million and the residential adult cancer risk would be 1.0 in one million. While the residential adult cancer risk would be below the BAAQMD's threshold of 10 in one million excess cancer cases per million, the increased cancer risk for a residential child exposure is greater than the significance threshold. The maximum annual $PM_{2.5}$ concentrations would be 0.23 µg/m^3, which would be below the significance threshold of 0.3 µg/m^3. Associated non-cancer hazards would be well below the significance hazard index threshold of 1.0 for DPM, with a hazard index computed as 0.045. Because predicted child cancer risk exceeds 10.0 per million, the projects would have a *significant impact* with respect to community risk caused by construction activities.~~

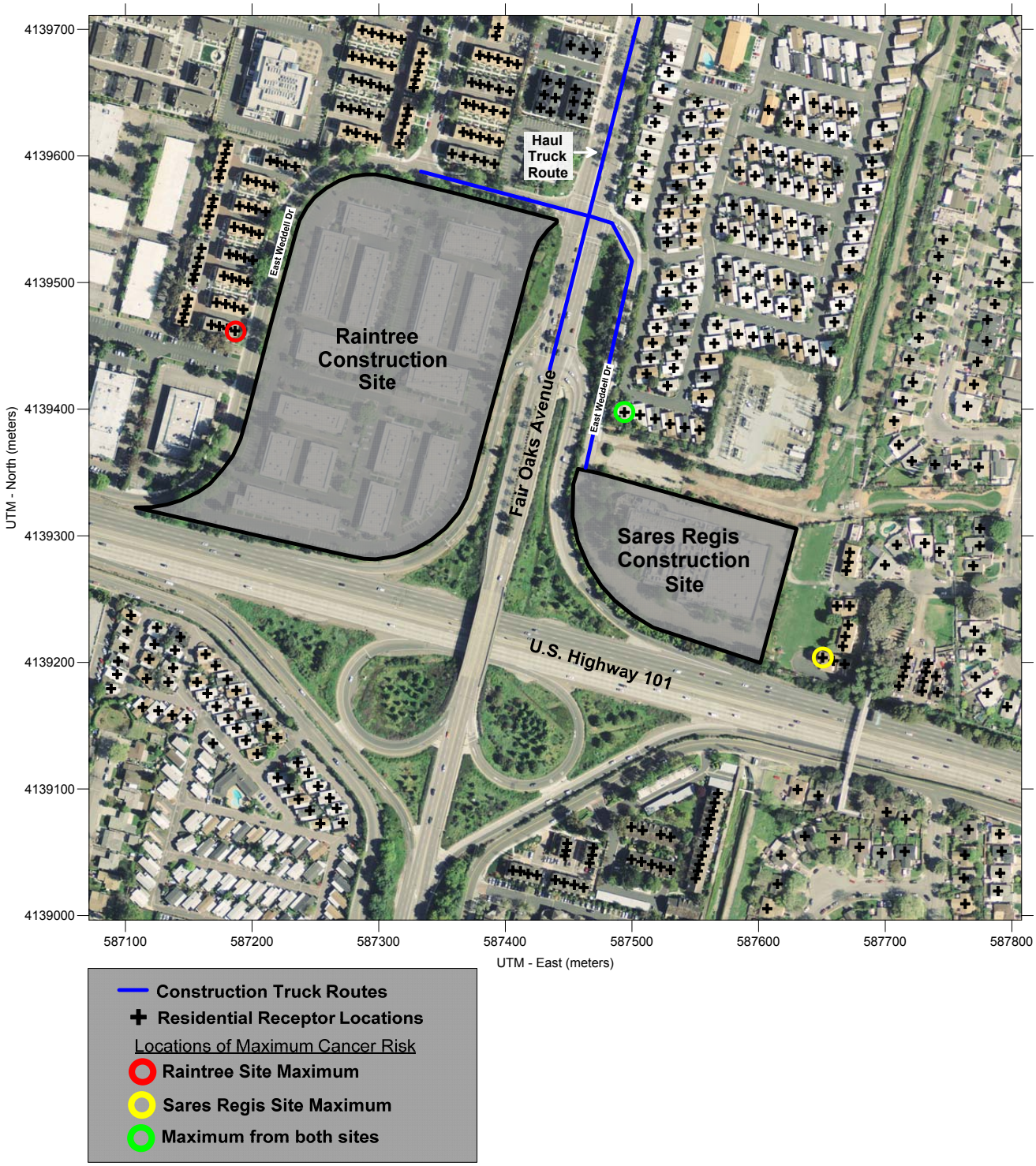

Figure 4.2-6

PROJECT SITES, CONSTRUCTION AREAS, TRUCK ROUTE AND OFF-SITE RECEPTORS

SOURCE: Illingworth & Rodkin, Inc., 2013

AMY SKEWES~COX
ENVIRONMENTAL PLANNING

Mitigation Measure AIR-5a: Since project emissions do not exceed emission-based thresholds, only BAAQMD-recommended Basic Construction Mitigation Measures for all proposed projects are recommended. Since construction would lead to singnificant community risk impacts in the form of excess cancer risk and annual $PM_{2.5}$ concentrations, an additional measure is included to reduce construction period exhaust emissions. The projects shall include the following measures recommended by the Bay Area Air Quality Management District (BAAQMD) (i.e., Best Management Practices) to reduce construction dust and on-site construction exhaust emissions by 5 percent:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. *All haul trucks transporting soil, sand, or other loose material off-site shall be covered.*
3. *All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.*
4. *All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).*
5. *All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.*
6. *Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.*
7. *All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.*
8. *A publicly visible sign shall be posted with the telephone number and person to contact at the City of Sunnyvale regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Bay Area Air Quality Management Air District's phone number shall also be visible to ensure compliance with applicable regulations.*
9. *A plan shall be developed demonstrating that the off-road equipment ~~(more than 50 horsepower and on-site for more than two consecutive workdays)~~ to be used in project construction would achieve an additional 50-percent reduction in exhaust particulate matter emissions, compared to similar equipment based on CARB OFFROAD statewide average emission factors for the projected year of use. ~~that meets U.S. EPA Tier 2 standards~~. Based on the construction plans presented for this project, a feasible method to achieve this objective would be the following:*
   - *All diesel-powered air compressors, welders, forklifts (including rough terrain forklifts), paint spray rigs, and all types of cranes, forklifts or aerial lifts (man lifts, boom lifts, etc.) used during all construction phases shall meet or exceed U.S. EPA Tier 4 standards for particulate matter emissions or substituted with alternatively fueled equipment (e.g., LPG fuel).*

- *All other off-road construction equipment used on the site shall, on a fleet-wide average, meet U.S. EPA Tier 2 emission standards.*
- *Portable diesel generators operating for more than two days shall be prohibited. Grid power electricity shall be used to provide power at construction sites, or non-diesel generators (or diesel generators using bio-diesel fuel) may be used when grid power electricity is not feasible.*

The above measures, which apply to both project-specific and cumulative impacts, shall be included in contract specifications for both projects.

The mitigation measures listed above, applied to the Raintree Applicant Proposed Scenario and the Sares Regis Applicant Proposed Scenario, would reduce the maximum child excess cancer risk from each of the projects as well as the combination of the two projects to below 9.9 per million.

Construction emissions with Mitigation Measure AIR-5a were computed using the CalEEMod model. These emissions were input to the ISCST3 dispersion model to predict mitigated DPM and $PM_{2.5}$ concentrations and the corresponding excess cancer risks. As a result, the maximum excess child cancer risk would be reduced to 7.0 chances per million for the Sares Regis Applicant Proposed Scenario and 6.8 chances per million for the Raintree Applicant Proposed Scenario.

Since construction techniques, equipment usage, and schedules have not been identified for the Full Buildout Scenarios, Mitigation Measure AIR-5b is included below.

- Applies to Sares Regis Applicant Proposed Scenario: ☒
- Applies to Sares Regis Full Buildout Scenario: ☒
- Applies to Raintree Applicant Proposed Scenario: ☒
- Applies to Raintree Full Buildout Scenario: ☒

Mitigation Measure AIR-5b: When construction information is available for the Full Buildout Scenario, a complete air emissions analysis for construction emissions shall be completed by the project applicants to address health risk impacts (i.e., excess cancer risk, annual $PM_{2.5}$ concentration and Hazard Index) during construction of the Sares Regis and Raintree projects. If predicted excess cancer risk, annual $PM_{2.5}$ concentration, or Hazard Index exceed the BAAQMD thresholds, the applicants shall identify mitigation measures that would reduce construction-related health risks to below the BAAQMD thresholds. Such measures may include:

- *Use of newer or retrofitted construction equipment that has low emission rates;*
- *Use of alternatively fueled equipment; and*
- *Modification of construction techniques to avoid use of diesel-powered equipment.*

Compliance with thresholds shall be verified by the City prior to issuance of any building permits. The above measures would reduce the air quality impact to a less-than-significant level. (LTS)

- Applies to Sares Regis Applicant Proposed Scenario: ☐
- Applies to Sares Regis Full Buildout Scenario: ☒

- Applies to Raintree Applicant Proposed Scenario: ☐
- Applies to Raintree Full Buildout Scenario: ☒

Impact AIR-6: The projects would not create objectionable odors affecting a substantial number of people. (LTS)

The projects would generate localized emissions of diesel exhaust during construction equipment operation and truck activity. These emissions may be noticeable from time to time by adjacent receptors. However, they would be localized and would not be likely to adversely affect people off-site in that they would result in confirmed odor complaints.

The projects propose residential uses on the project sites. The sites are not affected by existing odor sources that would cause odor complaints from future residents.

Sares Regis Applicant Proposed Scenario. See above discussion.

Sares Regis Full Buildout Scenario. See above discussion.

Raintree Applicant Proposed Scenario. See above discussion.

Raintree Full Buildout Scenario. See above discussion.

Mitigation Measure AIR-6: No mitigation would be necessary. (LTS)

- Applies to Sares Regis Applicant Proposed Scenario: ☒
- Applies to Sares Regis Full Buildout Scenario: ☒
- Applies to Raintree Applicant Proposed Scenario: ☒
- Applies to Raintree Full Buildout Scenario: ☒

CUMULATIVE IMPACTS

Impact AIR-7: Project emissions of criteria air pollutants or their precursors would not make a considerable contribution to cumulative air quality impacts. (LTS)

Air pollution, by nature, is mostly a cumulative impact. The significance thresholds applicable to construction and operational aspects of a project represent the levels at which a project's individual emissions of criteria pollutants and precursors would result in a cumulatively considerable contribution to the region's air quality conditions as determined by the BAAQMD.

The proposed projects' operational emissions would not exceed the significance thresholds, and therefore project operations would not make a considerable contribution to cumulative air quality impacts. This analysis included cumulative traffic conditions for the project area and found that violations of the carbon monoxide standards would not occur. For project air emissions during construction, Mitigation Measure AIR-5a would minimize fugitive dust emissions by employing Best Management Practices identified by the BAAQMD for minimizing fugitive dust (PM_{10}) impacts.

This assessment identified significant cancer risk and $PM_{2.5}$ exposure for new project residences located near Highway 101 (see Impact AIR-4). Mitigation Measure AIR-4 would reduce this impact to a less-than-significant level. Impacts associated with community risk incorporate future projections of traffic conditions and emissions along with existing stationary sources. As shown in **Table 4.2-10a and 4.2-11b**, the projects with Mitigation Measure AIR5-a implemented would not result in a significant cumulative community risk because projected cancer risks, annual $PM_{2.5}$ concentrations, and the Hazard Index resulting from all substantial sources within 1,000 feet of the sites would all be below the cumulative source thresholds recommended by the BAAQMD and used in this analysis.

~~As described under Impact AIR-5, results of this assessment indicate that, without mitigation or construction plans to reduce on-site exhaust emissions, the maximum construction residential child cancer risk would be 10.6 in one million for the Sares Regis site and 19.0 in one million for the Raintree site. The combination of construction of both sites would result in the maximum construction residential child cancer risk of 19.7 in one million and a residential adult cancer risk of 1.0 in one million. While the residential adult cancer risk is below the BAAQMD's threshold of 10 in one million excess cancer cases per million, Mitigation Measure AIR-5 would reduce this impact to a less-than-significant level.~~

~~The maximum annual $PM_{2.5}$ concentration associated with construction of each site would be 0.12 µg/m³ for the Sares Regis site and 0.22 µg/m³ for the Raintree site. The maximum annual $PM_{2.5}$ concentration associated with construction of both sites would be 0.22 µg/m³. The maximum hazard index from the construction of each site, as wells as the combination of both sites, would be well below the thresholds recommended by the BAAQMD and used in this analysis.~~

~~The combination of the maximum excess child cancer risk, annual $PM_{2.5}$ concentrations and Hazard Index resulting from construction were added to cumulative TAC sources near the receptor most affected by project construction (referred to as the maximum exposed individual or MEI). The combination of these impacts is reported in **Table 4.2-12**. As shown, the cumulative risk would be below the thresholds recommended by the BAAQMD and used in this analysis.~~

Impact of Applicant Proposed Scenarios

As described under Impact AIR-5, results of this assessment indicate that, without mitigation or construction plans to reduce on-site exhaust emissions, the maximum construction residential child cancer risk would be 19.5 in 1 million for the Sares Regis site and 23.2 in 1 million for the Raintree site. Although each project is an independent project, each is a reasonably foreseeable future project for the purposes of a cumulative analysis of construction impacts. The combination of construction of both sites would result in the maximum construction residential child cancer risk of 26.8 in one million and a residential adult cancer risk of 1.5 in 1 million. The receptor that would have the maximum child cancer risk from the combination of both projects is shown in **Figure 4.2-6**. Mitigation Measure AIR-5a would reduce this impact to less than significant.

The maximum annual $PM_{2.5}$ concentration associated with construction of each site would be 0.23 µg/m³ for the Sares Regis site and 0.28 µg/m³ for the Raintree site. The maximum annual $PM_{2.5}$ concentration associated with construction of both sites would be 0.297 µg/m³. The maximum hazard index from the construction of each site, as well as the combination of both sites, would be

well below the thresholds recommended by the BAAQMD and used in this analysis. Again, Mitigation Measure AIR-5a would reduce this impact to less than significant.

The combination of the maximum excess child cancer risk, annual $PM_{2.5}$ concentrations and Hazard Index resulting from construction of both the Sares Regis and Raintree Applicant Proposed Scenarios were added to cumulative TAC sources near the receptor most affected by project construction (referred to as the maximum exposed individual or MEI). The combination of these impacts is reported in **Table 4.2-12**. As shown, the cumulative risk would be below the thresholds recommended by the BAAQMD and used in this analysis.

The mitigation measures listed in Mitigation Measure AIR-5a, applied to the Raintree Applicant Proposed Scenario and the Sares Regis Applicant Proposed Scenario, would reduce the maximum child excess cancer risk from the combination of the two projects to 9.1 per million. Mitigation Measure AIR-5b would be required to ensure that child excess cancer risk and annual $PM_{2.5}$ concentrations from construction of the Raintree Full Buildout Scenario and the Saris Regis Full Buildout scenario would be below the project threshold of 10.0 excess cancer cases and annual $PM_{2.5}$ concentrations of 0.8 $\mu g/m^3$ for project impacts and 10.0 excess cancer cases and annual $PM_{2.5}$ concentrations of 0.8 $\mu g/m^3$ for cumulative sources.

Sares Regis Applicant Proposed Scenario. See above discussion.

Sares Regis Full Buildout Scenario. See above discussion.

Raintree Applicant Proposed Scenario: See above discussion.

Raintree Full Buildout Scenario. See above discussion.

> *Mitigation Measure AIR-7: The projects would be required to comply with Mitigation Measures AIR-4 and AIR-5; no additional mitigation would be necessary. (LTS)*

- Applies to Sares Regis Applicant Proposed Scenario: ☒
- Applies to Sares Regis Full Buildout Scenario: ☒
- Applies to Raintree Applicant Proposed Scenario: ☒
- Applies to Raintree Full Buildout Scenario: ☒

REFERENCES

American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 2007, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size. ANSI/ASHRAE Standard 52.2-2007.

Bay Area Air Quality Management District (BAAQMD), 2009, *California Environmental Quality Act Guidelines Update Proposed Thresholds of Significance*, December.

Bay Area Air Quality Management District (BAAQMD), 2010a, *Air Toxics NSR Program Health Risk Screening Analysis Guidelines*, January.

Table 4.2-12 Cumulative Unmitigated Risk from Construction of the Sares Regis and Raintree Projects

Source	Cancer Risk[a]	Chronic Hazard	Acute Hazard	$PM_{2.5}$ Concentration (µg/m3)
Construction	~~19.7~~ 26.8 (child)[b] 1.0 (adult)[b]	~~0.04~~ 0.03[b]	~~0.04~~ 0.03[b]	~~0.22~~ 0.30[b]
Construction with Mitigation Measure AIR-5a	9.1 (child)[b] 0.5 (adult)[b]	0.01[b]	0.01[b]	0.09[b]
Highway 101	12.2[c]	0.06[c]	0.06[c]	0.28[c]
North Fair Oaks Avenue	3.9d[cd]	<0.03[d]	<0.03[d]	0.15[d]
Plant 8251, Aixtron (1139 Karstad Drive)	0.5[e]	0.00[e]	0.00[e]	0.00[e]
Plant ~~18796~~ 18976, Switch and Data CA Eleven (444 Toyama Drive)	0.2[f]	0.00[g]	0.00[g]	<0.00[g]
Total Cumulative Sources	~~35.8~~ 43.6 (child)	<0.13	<0.13	~~0.65~~ 0.73
Total Cumulative Sources with Mitigation Measure AIR-5a	25.9 (child)	<0.11	<0.11	0.52
Cumulative ~~Risk~~ Source Threshold	100	10.0	10.0	0.8

Notes: $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less, µg/m3 = micrograms per cubic meter.
[a] Cancer risk reported in excess cases per million.
[b] Modeled using construction information, OFFROAD2010 factors, ISCST3 model with Mineta San Jose International Airport meteorological data.
[c] Modeled using Highway 101 traffic, EMFAC2011 with Mineta San Jose International Airport meteorological data.
[d] Data obtained from BAAQMD *Roadway Analysis Tables*. These tables indicate acute and chronic hazard indexes are well below 1.0.
[e] Obtained from BAAQMD SSIF Request (BAAQMD, 2013a) with Distance Multiplier applied.
[f] Obtained from BAAQMD SSIF Request (BAAQMD, 2013b) and modeled using ISCST3 with BAAQMD source data and Mineta San Jose International Airport meteorological data.
Source: Illingworth & Rodkin, Inc., 2013.

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APPENDIX C
REVISED SECTION 4.4, GREENHOUSE GAS EMISSIONS

4.4 GREENHOUSE GAS EMISSIONS

INTRODUCTION

This section evaluates the potential greenhouse gas (GHG) emissions impacts of the proposed projects. The analysis considers both operational and construction effects. The primary focus of the GHG emissions analysis was to evaluate future project-related emissions. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD, 2011).

ENVIRONMENTAL SETTING

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide and water vapor but there are also several others, most importantly methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These are released into the earth's atmosphere through a variety of natural processes and human activities.

Sources of GHGs are generally as follows:

- Carbon dioxide and nitrous oxide are byproducts of fossil fuel combustion.
- Nitrous oxide is associated with agricultural operations such as fertilization of crops.
- Methane is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- Hydrofluorocarbons are now used as a substitute for chlorofluorocarbons in refrigeration and cooling.
- Perfluorocarbons and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with carbon dioxide being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger with a GWP of 23,900. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of carbon dioxide equivalents (CO_2e).

An expanding body of scientific research supports the theory that global warming is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California could be adversely affected by the global warming trend. Increased precipitation and sea level rise could increase coastal flooding, saltwater

intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

REGULATORY FRAMEWORK

This section summarizes key federal, state, regional, and local statutes, regulations and policies that would apply to the projects. Global climate change resulting from GHG emissions is an emerging environmental concern being raised and discussed at the international, national, and statewide level. At each level, agencies are considering strategies to control emissions of gases that contribute to global climate change.

FEDERAL REGULATIONS

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC). While the United States signed the Kyoto Protocol, which would have required reductions in GHGs, Congress never ratified the protocol. The federal government chose voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science. In 2002, the United States announced a strategy to reduce the GHG intensity of the American economy by 18 percent over a 10-year period from 2002 to 2012. At this time, there are no federal regulations or policies pertaining to GHG emissions that relate to the proposed projects.

STATE REGULATIONS

The State of California is concerned about GHG emissions and their effect on global climate change. The State of California recognizes that “there appears to be a close relationship between the concentration of GHGs in the atmosphere and global temperatures” and that “the “evidence for climate change is overwhelming.” The effects of climate change on California, in terms of how it would affect the ecosystem and economy, remain uncertain. The State of California has many areas of concern regarding climate change with respect to global warming. According to the 2006 Climate Action Team Report, the following climate change effects and conditions can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, affecting the state’s water supply;
- Increasing temperatures from 8 to 10.4 degrees Fahrenheit (°F) under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution standards are exceeded in most urban areas;
- Coastal erosion along the length of California and seawater intrusion into the Sacramento River Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions;
- Increased vulnerability of forests due to pest infestation and increased temperatures;

- Increased challenges for the state's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta; and
- Increased electricity demand, particularly in the hot summer months.

Assembly Bill 1575 (1975)

In 1975, the Legislature created the California Energy Commission (CEC). The CEC regulates electricity production that is one of the major sources of GHGs.

Title 24, Part 6 of the California Code of Regulations (1978)

The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

Assembly Bill 1493 (2002)

Assembly Bill (AB) 1493 required the California Air Resources Board (CARB) to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks.

State of California Executive Order S-3-05 (2005)

The Governor's Executive Order established aggressive emissions reductions goals: by 2010, GHG emissions must be reduced to 2000 levels; by 2020, GHG emissions must be reduced to 1990 levels; and by 2050, GHG emissions must be reduced to 80 percent below 1990 levels.

In June 2005, the Governor of California signed Executive Order S-3-05, which identified the California Environmental Protection Agency (Cal/EPA) as the lead coordinating State agency for establishing climate change emission reduction targets in California. A "Climate Action Team," a multi-agency group of State agencies, was set up to implement Executive Order S-3-05. Under this order, the State of California plans to reduce GHG emissions to 80 percent below 1990 levels by 2050. GHG emission reduction strategies and measures to reduce global warming were identified by the California Climate Action Team in 2006.

Assembly Bill 32, California Global Warming Solutions Act (2006)

AB 32, the Global Warming Solutions Act of 2006, codifies the State of California's GHG emissions target by directing CARB to reduce the state's global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, CARB, CEC, CPUC, and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State of California's main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including

increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. It required CARB and other state agencies to develop and adopt regulations and other initiatives reducing GHGs by 2012.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of carbon dioxide equivalent (MMTCO_2e) as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 MMT of CO_2e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO_2e. Thus, an estimated reduction of 80 MMT of CO_2e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

Senate Bill 375, California's Regional Transportation and Land Use Planning Efforts (2008)

The State of California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 would develop emissions-reduction goals in which regions can apply in planning activities. SB 375 provides incentives for local governments and developers to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows developers to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB would work with the metropolitan planning organizations (e.g. Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

The Bay Area Air Quality Management District (BAAQMD) is the regional government agency that regulates sources of air pollution within the nine San Francisco Bay Area counties. The BAAQMD regulates GHG emissions through the following plans, programs, and guidelines.

Regional Clean Air Plans

The BAAQMD and other air districts prepare clean air plans in accordance with the State and federal Clean Air Acts. The Bay Area 2010 Clean Air Plan (CAP) is a comprehensive plan to improve Bay Area air quality and protect public health through implementation of a control strategy

designed to reduce emissions and ambient concentrations of harmful pollutants. The most recent CAP also includes measures designed to reduce GHG emissions.

BAAQMD Climate Protection Program

The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of which assist in reducing emissions of GHG and in reducing air pollutants that affect the health of residents. The BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

CITY OF SUNNYVALE

The City of Sunnyvale is currently in the process of developing a Climate Action Plan. A draft was published in November of 2011 (City of Sunnyvale, 2011) and is in the environmental review stages. The draft lays out GHG emissions projections and reduction measures in ten key resource areas, including energy consumption, water consumption, landfill waste, vehicular travel, and more. One of the goals of the Climate Action Plan, once approved and finalized, is to streamline the CEQA process for future development projects within the city.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Per Appendix G of the CEQA Guidelines and BAAQMD recommendations, GHG emissions are considered significant if implementation of the proposed projects would:

- Generate GHG emissions either directly or indirectly that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The BAAQMD provides guidance in assessing impacts to lead agencies in the Bay Area. In June 2010, the BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on the BAAQMD's website and included in the BAAQMD's updated CEQA Guidelines (updated May 2011). The BAAQMD thresholds were developed specifically for the Bay Area after considering the latest Bay Area GHG inventory and the effects of AB 32 scoping plan measures that would reduce regional emissions. The BAAQMD intends to achieve GHG reductions from new land use developments to close the gap between projected regional emissions with AB 32 scoping plan measures and the AB 32 targets. The BAAQMD GHG recommendations include a bright-line emissions threshold of 1,100 metric tons (MT) of CO_2e or an emission efficiency metric of 4.6 MT

of CO_2e per year per capita (future residences) if the bright-line threshold is exceeded. Projects that have emissions below 1,100 MT of CO_2e per year, or 4.6 MT of CO_2e per year per capita are considered to have less than significant GHG emissions.

The BAAQMD's adoption of the thresholds was called into question by an order issued March 5, 2012, in California Building Industry Association v. BAAQMD (Alameda Superior Court Case No. RGI0548693). The order ~~requires~~ required the BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The ruling made in the case concerned the environmental impacts of adopting the thresholds and how the thresholds would indirectly affect land use development patterns. Those issues were not relevant to the scientific basis of the BAAQMD's analysis of what levels of pollutants should be deemed significant. In August 2013, the First District Court of Appeal reversed the trial court judgment that had invalidated the BAAQMD's adoption of the thresholds. The Court of Appeal held that the BAAQMD's adoption of the CEQA Air Quality Guidelines, including the thresholds of significance, is not itself a "project" subject to CEQA review. The court also found that the BAAQMD's thresholds were supported by substantial evidence. In November 2013, the California Supreme Court granted a focused review of the circumstances, if any, under which CEQA requires an analysis of how existing environmental conditions will affect future residents or users (receptors) of a proposed project.

This analysis considers the science informing the thresholds as being supported by substantial evidence. Scientific information supporting the thresholds was documented in the BAAQMD's proposed thresholds of significance analysis (BAAQMD, 2009). Moreover, the thresholds will not cause any indirect impact in terms of land use development patterns insofar as these projects are concerned, because the proposal to construct the projects is not influenced by the BAAQMD guidelines. Accordingly, the analysis herein uses the thresholds and methodologies from the BAAQMD's May 2011 CEQA Air Quality Guidelines (BAAQMD, 2011) to determine the potential impacts of the projects on the existing environment.

PROJECT IMPACTS

Impact GHG-1: The projects would not generate greenhouse gas emissions, either directly or indirectly, that would have a significant impact on the environment. (LTS)

The California Emissions Estimator Model Version ~~2011.1.1~~ 2013.2.2 (CalEEMod) was used to predict GHG emissions from operation of the sites. The model predicts emissions of GHGs in the form of CO_2e. The project land use types and sizes, trip generation rates and other project-specific information were input to the model. The use of this model for evaluating emissions from land use projects is recommended by the BAAQMD. Unless otherwise noted below, the CalEEMod model defaults for Santa Clara County were used. CalEEMod provides emissions for transportation, areas sources, electricity consumption, natural gas combustion, electricity usage associated with water usage and wastewater discharge, and solid waste land filling and transport. CalEEMod input and output worksheets are included in Appendix D.

The model uses mobile emission factors from the California Air Resources Board's ~~EMFAC2007~~ EMFAC2011 model ~~and adjusts these based on the effect of new regulations to reduce GHG emissions. These regulations include the Pavley Rule that increases fleet efficiency (reducing fuel consumption) and the low carbon fuel standard~~. This model is sensitive to the year selected since

vehicle emissions have and continue to be reduced due to fuel efficiency standards and low carbon fuels. Adjustments to the modeling are described below.

Operational Emissions

Sares Regis Land Use Descriptions

The proposed project land uses were input into CalEEMod, which included 205 mid-rise apartments and a 348-space parking structure under the Applicant Proposed Scenario and 259 mid-rise apartments and a 419-space parking structure under the Full Buildout Scenario.

Raintree Land Use Descriptions

The proposed project land uses were input into CalEEMod, which included 465 mid-rise apartments and a 790-space parking structure under the Applicant Proposed Scenario and 679 mid-rise apartments and a 1,165-space parking structure under the Full Buildout Scenario.

Sares Regis Year of Analysis

Emissions associated with vehicle travel depend on the year of analysis. The earlier the year, the higher the emission rates as CalEEMod uses the California Air Resources Board's EMFAC2007 motor vehicle emissions model. This model assumes reduced emission rates as newer vehicles with lower emission rates replace older, more polluting vehicles through attrition of the overall vehicle fleet. The earliest full year the Applicant Proposed Scenario could be possibly constructed and fully operated was assumed to be 2016. Use of this early date is considered conservative, as emissions associated with build-out later than 2016 would be lower. The earliest full year that Full Buildout Scenario could be possibly constructed and fully operated was assumed to be 2018.

Raintree Year of Analysis

The earliest full year the Applicant Proposed Scenario could be possibly constructed and fully operated was assumed to be 2017. The earliest full year that the Full Buildout Scenario could be possibly constructed and fully operated was assumed to be 2019.

Sares Regis Trip Generation Rates

CalEEMod allows the user to enter specific trip generation rates. TJKM transportation consultants provided trip generation rates for the projects by land use type (TJKM, 2013). Trip generation represents the daily number of trips generated when the land use is fully operational. CalEEMod default trip characteristics (trip type, length, pass-by and diverted trip percentages, and vehicle mix) were used. Under the Applicant Proposed Scenario, the daily rate is 6.66 trips per dwelling units, and under the Full Buildout Scenario, the daily rate is 6.54 trips per dwelling unit. The trip generation rate is based on ITE equations for multi-family residences that are dependent on the size of the project. The Raintree project, with the higher number of dwelling units, has a slightly lower trip generation rate.

Adjustments to the CalEEMod weekend rate were not made, since the trip rate provided was assumed to be representative of weekday operation.

Raintree Trip Generation Rates

For the existing operating land use, TJKM transportation consultants provided a trip generation rate of 6.97 trips per 1,000 square feet. Under the Applicant Proposed Scenario, the daily rate is 6.32 trips per dwelling unit, and under the Full Buildout Scenario, the daily rate is 6.24 trips per dwelling unit. Adjustments to the CalEEMod weekend rate were not made, since the trip rate provided was assumed to be representative of weekday operation.

Energy Usage

Default rates for energy consumption were assumed in the model. Emissions rates associated with electricity consumption were adjusted to account for Pacific Gas & Electric (PG&E) projected future CO_2 intensity rates. These rates are based, in part, on the requirement of a renewable energy portfolio standard of 33 percent by the year 2020. CalEEMod uses a default rate of 641 pounds of CO_2 per megawatt of electricity produced that is based on PG&E's 2008 certified rate. The derived 2016, 2017, 2018, and 2019 rates for PG&E are estimated at 370.00, 348.86, 327.74, and 306.68 pounds of CO_2 per megawatt of electricity delivered, respectively, and are based on the California Public Utilities Commission (CPUC) GHG Calculator (CPUC, 2010).

Sares Regis Energy-Efficiency Measures

In addition, the Sares Regis project would incorporate the following into final project design:

- Exceed the State 2008 Title 24 California Energy Code requirements by at least 15 percent;
- Install high-efficiency lighting; and
- Install energy-efficient appliances.

Raintree Energy-Efficiency Measures,

The Raintree project would incorporate the following into final project design:

- Exceed the State 2008 Title 24 California Energy Code requirements by at least 15 percent;
- Install high-efficiency lighting;
- Install energy-efficient appliances; and
- Apply a water conservation strategy, including utilizing water-efficient landscaping.

It should be noted that due to the nature of the CalEEMod model, these energy-efficiency measures (which are proposed as part of the projects) are included in CalEEMod mitigated results. However, since these measures are proposed as part of the projects, they would be considered as part of the unmitigated condition for both projects.

Operational Emissions by Project Scenario

Sares Regis Applicant Proposed Scenario. As shown in **Table 4.4-1** below, the Sares Regis project would exceed the GHG emissions bright-line thresholds of 1,100 MT of CO_2e/yr. Therefore, the per capita emissions for the project were calculated. The Sares Regis site is expected to house 511 future residents under the Applicant Proposed Scenario. Per capita operational emissions from the project were found to be ~~3.2~~3.1 MT CO_2e/yr, which is below the per capita

threshold of 4.6 MT CO_2e/yr. As a result, the project GHG emissions would be considered less than significant. Modeling output that includes assumptions are provided as the CalEEMod model output in Appendix D.

Sares Regis Full Buildout Scenario. As shown in Table 4.4-1 below, the Sares Regis project would exceed the GHG emissions bright-line thresholds of 1,100 MT of CO_2e/yr. Therefore, the per capita emissions for the project were calculated. The Sares Regis site is expected to house 645 future residents under the Full Buildout Scenario. Per capita operational emissions from the project were found to be 2.9 MT CO_2e/yr, which is below the per capita threshold of 4.6 MT CO_2e/yr. As a result, the project GHG emissions would be considered less than significant.

Raintree Applicant Proposed Scenario. As shown in Table 4.4-2 below, the Raintree project would exceed the GHG emissions bright-line thresholds of 1,100 MT of CO_2e/yr. Therefore, the per capita emissions for the project were calculated. The Raintree site is expected to house 1,158 future residents under the Applicant Proposed Scenario. Per capita operational emissions from the project were found to be ~~3.1~~3.0 MT CO_2e/yr, which is below the per capita threshold of 4.6 MT CO_2e/yr. As a result, the project GHG emissions would be considered less than significant.

Raintree Full Buildout Scenario. As shown in **Table 4.4-2** below, the Raintree project would exceed the GHG emissions bright-line-thresholds of 1,100 MT of CO_2e/yr. Therefore, the per capita emissions for the project were calculated. The Raintree site is expected to house 1,691 future residents under the Full Buildout Scenario. Per capita operational emissions from the project were found to be 2.8 MT CO_2e/yr, which is below the per capita threshold of 4.6 MT CO_2e/yr. As a result, the project GHG emissions would be considered less than significant.

Construction Emissions

Total GHG emissions in the form of CO_2 for construction were calculated, including both on-site and off-site activities using CalEEMod. On-site activities would consist of the operation of off-road construction equipment, as well as on-site truck travel (e.g., haul trucks, water trucks, and concrete trucks). ~~Emissions from off-road equipment were calculated by utilizing emission factors from the CARB OFFROAD model for off-road construction equipment and the project construction schedule. On and off-site vehicle emissions were computed using emission factors from CARB's EMFAC2011 mobile source emissions model.~~

Sares Regis Schedule, Phases, and Equipment

It is anticipated that the Sares Regis project would be constructed over 21 months, from early 2014 through late 2015. Construction of the Sares Regis project is also assumed to include 10-inch-diameter sewer main upsizing along North Fair Oaks Avenue. This was modeled based on the construction information provided. This project would be constructed within 2 weeks. The construction schedule, estimated hauling truck volumes to remove demolition material and soil, and anticipated on-site construction equipment used for the CalEEMod emission ~~calculations~~ modeling are shown in Appendix D. Anticipated demolition and soil hauling volumes, and trips from cement trucks are also shown in Appendix D.

Table 4.4-1 Sares Regis Project Operational GHG Emissions

Scenario	CO_2e (MT)
Applicant Proposed Scenario – 2016	
Area	~~3~~10
Energy	~~221~~252
Mobile	~~1,320~~1,237
Waste	43
Water	~~29~~34
Total Emissions in Metric Tons Per Year	~~*1,616*~~*1,576*
BAAQMD Thresholds	*1,100*
Exceed?	***Yes***
Per Capita Emissions	~~3.2~~3.1
BAAQMD Thresholds	4.6
Significant?	***No***
Full Buildout Scenario – 2018	
Area	~~3~~12
Energy	~~263~~290
Mobile	~~1,538~~1,449
Waste	54
Water	~~*34*~~*40*
Total Emissions in Metric Tons Per Year	~~1,892~~1,845
BAAQMD Thresholds	*1,100*
Exceed?	***Yes***
Per Capita Emissions	2.9
BAAQMD Thresholds	4.6
Significant?	***No***

Note: GHG = greenhouse gas, CO_2e = carbon dioxide equivalents, MT = metric tons, BAAQMD = Bay Area Air Quality Management District
~~Source: Illingworth & Rodkin, Inc., 2013.~~

Table 4.4-2 Raintree Project Operational GHG Emissions

Scenario	CO_2e (MT)
Applicant Proposed Scenario – 2017	
Area	~~6~~21
Energy	~~487~~686
Mobile	~~2,894~~2,621
Waste	97
Water	~~57~~65
Total Emissions in Metric Tons Per Year	~~*3,541*~~*3,490*
BAAQMD Thresholds	*1,100*
Exceed?	***Yes***
Per Capita Emissions	~~3.1~~3.0
BAAQMD Thresholds	4.6
Significant?	***No***
Full Buildout Scenario – 2019	
Area	~~9~~31
Energy	~~668~~914
Mobile	~~3,902~~3,562
Waste	142
Water	~~*78*~~*89*
Total Emissions in Metric Tons Per Year	~~4,799~~4,738
BAAQMD Thresholds	*1,100*
Exceed?	***Yes***
Per Capita Emissions	2.8
BAAQMD Thresholds	4.6
Significant?	***No***

Note: GHG = greenhouse gas, CO_2e = carbon dioxide equivalents, MT = metric tons, BAAQMD = Bay Area Air Quality Management District
~~Source: Illingworth & Rodkin, Inc., 2013.~~

Raintree Schedule, Phases, and Equipment

It is anticipated that the Raintree project would be constructed over 24 months, from late 2014 through late 2016. The construction schedule, estimated hauling volumes, and anticipated on-site construction equipment used for the emission calculations are shown in Appendix D. Anticipated demolition and soil hauling volumes, and trips from cement trucks are also shown in Appendix D.

Off-Site Emissions

Emissions from haul trips, vendor trips, cement truck trips, and construction worker trips were ~~estimated using emission factors from EMFAC2011 and the estimated number of trips and trip lengths. Vendor, worker, and haul truck one-way trip lengths were estimated at 7.3 miles, 12.4 miles, and 20 miles, respectively~~ calculated using~~. These are the default trip lengths assumed in~~ the CalEEMod model. The number of haul trucks needed for construction of the projects was based on the amount of material to be hauled away during demolition and from excavation and grading activities at the site and was provided by the project applicants. The number of concrete trucks needed was also based on estimates provided by the project applicants. Demolition truck trips were assumed to be 10 miles, soil haul truck trips were assumed at 20 miles, and cement trips were assumed at 7.3 miles. These trips were all assumed to be made by heavy heavy-duty trucks. Vendor and worker trip generation was computed by CalEEMod. Vendor trip lengths were assumed to be 7.3 miles and made by a mix of medium-duty and heavy-heavy-duty trucks. Worker trips were assumed to be 12.4 miles and made by a mix of light-duty autos and light-duty trucks.

On-Site Emission Computations

On-site emissions from off-road construction equipment were calculated using ~~emission rates~~CalEEMod ~~from the OFFROAD model~~based on~~and~~ the number and types of construction equipment needed, along with the anticipated length of their use for different phases of construction based on the site-specific construction activity schedules (see Appendix D). These construction schedules included the estimated number of days the equipment would operate for each phase and the average number of hours per day of operation. Off-road equipment horsepower estimates and load factors were based on the defaults used by CalEEMod, if available, or provided by the project applicants. ~~Emission rates for construction equipment representative of U.S. EPA Tier 2 engine emission standards were assumed (a model year 2006 construction equipment fleet). Equipment load factors were based on the latest OFFROAD model guidance provided by CARB.~~ Construction of the projects is anticipated to occur during the weekdays from 7:00 AM to 6:00 PM and 8:00 AM to 5:00 PM on Saturdays.

Emissions from water trucks export haul trucks, cement trucks and vendor trucks associated with construction activities while traveling on or near the site were calculated using ~~emission factors from CARB's EMFAC2011 mobile source emissions~~ the CalEEMod model. ~~While traveling on-site, these trucks were assumed to travel a 10 miles per hour (mph). Additionally, haul trucks and vendor trucks were assumed to idle on-site for 10 minutes (5 minutes per trip) and concrete trucks were assumed to idle for one hour (60 minutes per truck).~~

Construction Emissions by Project Scenario

Sares Regis Applicant Proposed Scenario. Total construction CO_2 emissions were calculated to be ~~503~~728 MT of CO_2 for the entire construction period, including emissions from the sewer main replacement. ~~Construction emission computations~~CalEEMod worksheets are provided in Appendix D. While neither the BAAQMD nor the City of Sunnyvale has a quantified threshold for construction period GHG emissions, it should be noted that the BAAQMD encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable. The BAAQMD's suggested ~~B~~best management practices may include, but are not limited to using alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet; using at least 10 percent local building materials; and recycling or reusing at least 50 percent of construction waste or demolition materials.

Sares Regis Full Buildout Scenario. Since construction techniques, equipment usage, and schedule have not been identified for the Full Buildout Scenario, construction emissions cannot be calculated at this time. While neither the BAAQMD nor the City of Sunnyvale has a quantified threshold for construction period GHG emissions, it should be noted that the BAAQMD encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable. The BAAQMD's suggested ~~B~~best management practices may include, but are not limited to using alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet; using at least 10 percent local building materials; and recycling or reusing at least 50 percent of construction waste or demolition materials.

Raintree Applicant Proposed Scenario. Total construction CO_2 emissions were calculated to be ~~1,345~~2,178 MT of CO_2 for the entire construction period. ~~Construction emission computations~~CalEEMod worksheets are provided in Appendix D. While neither the BAAQMD nor the City of Sunnyvale has a quantified threshold for construction period GHG emissions, it should be noted that the BAAQMD encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable. BAAQMD's suggested ~~B~~best management practices may include, but are not limited to: using alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet; using at least 10 percent local building materials; and recycling or reusing at least 50 percent of construction waste or demolition materials.

Raintree Full Buildout Scenario. Since construction techniques, equipment usage, and schedule have not been identified for the full build-out scenarios, construction emissions cannot be calculated at this time. While neither the BAAQMD nor the City of Sunnyvale has a quantified threshold for construction period GHG emissions, it should be noted that the BAAQMD encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable. BAAQMD's suggested ~~B~~best management practices may include, but are not limited to using alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet; using at least 10 percent local building materials; and recycling or reusing at least 50 percent of construction waste or demolition materials

Mitigation Measure GHG-1: No mitigation would be necessary. (LTS)

- Applies to Sares Regis Applicant Proposed Scenario: ☒
- Applies to Sares Regis Full Buildout Scenario: ☒

- Applies to Raintree Applicant Proposed Scenario: ☒
- Applies to Raintree Full Buildout Scenario: ☒

Impact GHG-2: The projects would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. (LTS)

The adopted AB 32 Scoping Plan includes proposed GHG reductions from direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as cap-and-trade systems. The projects would be subject to all applicable permit and planning requirements in place or adopted by the City of Sunnyvale or State of California. Therefore, the proposed projects would not conflict with plans or policies related to the reduction of GHG emissions.

Sares Regis Applicant Proposed Scenario. See above discussion.

Sares Regis Full Buildout Scenario. See above discussion.

Raintree Applicant Proposed Scenario. See above discussion.

Raintree Full Buildout Scenario. See above discussion.

Mitigation Measure GHG-2: No mitigation would be necessary. (LTS)

- Applies to Sares Regis Applicant Proposed Scenario: ☒
- Applies to Sares Regis Full Buildout Scenario: ☒
- Applies to Raintree Applicant Proposed Scenario: ☒
- Applies to Raintree Full Buildout Scenario: ☒

CUMULATIVE IMPACTS

The GHG analysis considers cumulative impacts as part of the analysis. Therefore, no additional cumulative impacts have been identified and no additional mitigation measures would be required.

REFERENCES

Bay Area Air Quality Management District, 2009, *California Environmental Quality Act Guidelines Update Proposed Thresholds of Significance.* December.

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California Air Resources Board, 2008, *Climate Change Scoping Plan: A Framework for Change*, December.

California Public Utilities Commission (CPUC), 2010, GHG Calculator version 3c, October 7, 2010, available online at: http://ethree.com/public_projects/cpuc2.php, viewed on March 28, 2013.

City of Sunnyvale, 2011, *City of Sunnyvale Draft Climate Action Plan*, November.

Intergovernmental Panel on Climate Change, 2007, *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC*, Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller (eds.), Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, available online at http://www.ipcc.ch/, viewed on May 7, 2013.

TJKM, 2013, *Traffic Analysis for the East Weddell Residential Projects,* May.

APPENDIX D
MODELING OUTPUTS FOR
UPDATED SECTION 4.2, AIR QUALITY

Construction Schedules and Equipment

Project Name: Sares Regis Group								
							Total	
Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Average Hours per Phase	Annual Hours	Comments
	Demolition	**Start Date:**	Est: 1/15/2014					
		End Date:	Est: 3/1/2014		33			
0	Concrete/Industrial Saws	81	0.49	0	0		0	Demolition Volume
2	Excavators	157	0.38	7	30	6.4	420	840 tons of material = 56 truck trips
1	Rubber-Tired Dozers	358	0.4	7	30	6.4	210	4,000 tons concrete = 260 truck trips
2	Loader	246	0.37	6	30	5.5	360	1,600 tons aspahlt = 90 truck trips
1	Debris Shredder			6	20	3.6	120	
1	Crusher	540	0.34	7	20	4.2	140	Note: Final decision for on-site crushing operation pending.
	Other Equipment?							
	Grading / Excavation	**Start Date:**	Est: 3/1/2014					
		End Date:	Est: 5/1/2014		44			Soil Hauling Volume
2	Excavators	157	0.49	7	20	3.2	280	Export volume = **3800** cubic yards (estimated)
1	Graders	162	0.38	7	35	5.6	245	Import volume = **0** cubic yards (estimated)
1	Rubber-Tired Dozers	358	0.4	7	35	5.6	245	
2	Scrapers	356	0.37	5	35	4.0	350	
2	Tractors/Loaders/Backhoes	75	0.37	5	40	4.5	400	
	Other Equipment?							
	Trenching / Site Prep	**Start Date:**	Est: 5/1/2014					
		End Date:	Est: 7/15/2014		54			
2	Rubber-Tired Dozers	358	0.4	7	100	7.0	1400	
2	Tractor/Loader/Backhoe	75	0.37	7	100	7.0	1400	
1	Excavator	157	0.38	7	70	7.0	490	
	Other Equipment?							
	Building - Exterior	**Start Date:**	Est: 7/15/2014					Cement Trucks? **925** Total Round-Trips
		End Date:	Est: 6/15/2015		240			
1	Cranes	208	0.29	6	31	0.8	186	Electric? (Y/N) _N__ Otherwise assumed diesel
2	Forklifts	149	0.2	4	160	2.7	1280	Liquid Propane (LPG)? (Y/N) __N_ Otherwise Assumed diesel
0	Generator Sets	84	0.5	0	0	0.0	0	
1	Tractors/Loaders/Backhoes	75	0.37	4	200	3.3	800	
2	Welders	46	0.3	5	160	3.3	1600	
	Other Equipment?							
Building - Interior/Architectural Coating		**Start Date:**	Est: 6/15/2015					
		End Date:	Est:10/15/2015		89			
4	Air Compressors	60	0.32	7	110	7.0	3080	
	Other Equipment?							
	Paving	**Start Date:**	Est: 8/15/2015					
		Start Date:	Est: 10/15/2015		44			
1	Pavers	89	0.42	7	10	1.6	70	
1	Paving Equipment	82	0.36	7	10	1.6	70	
1	Rollers	84	0.38	5	10	1.1	50	
	Other Equipment?							

Project Name: Raintree Partners

Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Average Hrs per day	Total Annual Hours	HP hours	REVISED QUANTITIES (11/1/2013)
	Demolition	**Start Date:**	**9/15/2014**						
		End Date:	11/15/2014		**45**				
1	Concrete/Industrial Saws	81	0.49	6	10	1.3	60	4,860	Demolition Volume
3	Excavators	157	0.38	6	40	5.3	720	113,040	1,300 cubic yards of material = 200 truck trips
2	D6 Dozers	358	0.4	6	40	5.3	480	171,840	3,229 cubic yards concrete = 322 truck trips
2	Bobcats/Skidsteers	45	0.37	6	40	5.3	480	21,600	2,700 cubic yards aspahlt = 270 truck trips
2	Super Dump Haul Trucks	500	0.56	6	40	5.3	480	240,000	
1	Crushing/Processing Equip - TEREX	230	0.78	6	25	3.3	150	34,500	Haul truck included above
2	Water Trucks	400	0.56	8	44	7.8	704	281,600	
1	Street Sweeper & Vac Truck	64	0.28	8	44	7.8	352	22,528	
								-	
	Grading / Excavation	**Start Date:**	11/15/2014						
		End Date:	12/15/2014		**22**				Soil Hauling Volume
2	Excavators	157	0.38	6	22	6.0	264	41,448	Import/Export: 5,000 cubic yards (net export)
1	Graders (Blades)	162	0.41	6	18	4.9	108	17,496	312 Total Truck trips
1	Dozers	358	0.4	6	18	4.9	108	38,664	
2	Scrapers	356	0.48	6	18	4.9	216	76,896	
2	Tractors/Loaders/Backhoes	75	0.37	6	22	6.0	264	19,800	
2	Super Dump Haul Trucks	500	0.56	6	18	4.9	216	108,000	Haul truck included above
2	Bobcats/Skidsteers	45	0.37	6	20	5.5	240	10,800	
								-	
	Trenching / Site Prep	**Start Date:**	12/15/2014						
		End Date:	2/15/2015		**45**				
3	Rubber-Tired Dozers	358	0.4	6	38	5.1	684	244,872	
3	Tractor/Loader/Backhoe	75	0.37	6	38	5.1	684	51,300	
1	Trencher - Ditch Witch	70	0.5	6	20	2.7	120	8,400	
1	Mini Excavator	30	0.32	6	18	2.4	108	3,240	
								-	
	Building - Exterior	**Start Date:**	1/15/2015						Cement Trucks: **977** Total Round-Trips
		End Date:	7/15/2016		**396**				
1	Cranes	208	0.29	6	199	3.0	1194	248,352	Electric? (Y/N) __N_ Otherwise assumed diesel
5	Forklifts	149	0.2	6	396	6.0	11880	1,770,120	Liquid Propane (LPG)? (Y/N) _N__ Otherwise Assumed diesel
1	Generator Sets	84	0.5	6	396	6.0	2376	199,584	
3	Tractors/Loaders/Backhoes	75	0.37	6	300	4.5	5400	405,000	
1	Welders	46	0.3	6	45	0.7	270	12,420	
1	Manlift	120	0.31	8	186	3.8	1488	178,560	
2	Concrete Pumps	130	0.31	6	176	2.7	2112	274,560	Total Concrete = 8,800CY
1	Stucco Pump	40	0.31	5	190	2.4	950	38,000	
6	Air Compressors	30	0.32	6	250	3.8	9000	270,000	
2	Bobcats/Skidsteers	45	0.48	6	250	3.8	3000	135,000	
								-	
Building - Interior/Architectural Coating		**Start Date:**	8/15/2015						
		End Date:	9/15/2016		**285**				
5	Air Compressors	30	0.32	6	264	5.6	7920	237,600	Assumes one Year of Finish Work
1	Texture Spray Rig	30	0.32	6	264	5.6	1584	47,520	
1	Paint Spray Rig	30	0.32	6	264	5.6	1584	47,520	
								-	
	Paving	**Start Date:**	8/15/2016						
		Start Date:	9/15/2016		**24**				
2	Pavers	89	0.42	**6**	10	2.5	120	10,680	
2	Paving Equipment	82	0.36	6	10	2.5	120	9,840	
2	Rollers	84	0.38	6	10	2.5	120	10,080	
1	Vaccum Truck	64	0.46	8	12	4.0	96	6,144	

Equipment types listed in "Equipment Types" worksheet tab.
Equipment listed in this sheet is to provide an example of inputs
It is assumed that water trucks would be used during grading
Add or subtract phases and equipment, as appropriate
Modify horsepower or load factor, as appropriate

Duration based on intial correpondence = 22 Working Days in 1 mont
24 Month Overall Project Duration

Project Name:		E. Weddel 2 Projects, Sunnyvale - 10" Sewer Main					Complete ALL Portions in Yellow
Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Annual Hours	Comments
	Demolition	**Start Date:**	**e.g., 4/15/2014**				
		End Date:					
1	Concrete/Industrial Saws	81	0.49	8	1	8	**Demolition Volume**
	Excavators	162	0.38			0	183cy or 330 tons Hauling volume
	Rubber-Tired Dozers	255	0.40			0	183 CY
	Other Equipment?						
							Trucks = 16 trucks
	Trenching	**Start Date:**					
		End Date:					
1	Rubber Tired Loader	97	0.37	8	3	24	
1	Excavator	162	0.38	8	3	24	
	Generator Sets		0.50				
	Other Equipment?						
	Paving	**Start Date:**					
		Start Date:					
	Cement and Mortar Mixers	9	0.38			0	
	Pavers	125	0.42			0	
	Paving Equipment	130	0.36			0	
1	Rollers	80	0.38	8	1	8	
1	Tractors/Loaders/Backhoes	97	0.37	8	1	8	
	Other Equipment?						

CalEEMod Modeling Worksheets

Sares Regis Site Sunnyvale - 2016: Applicant Proposed (See Next Run for Tier 2/Tier 4 Combo)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	331.00	Space	0.00	135,000.00	0
Apartments Mid Rise	205.00	Dwelling Unit	4.04	280,000.00	511

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	370	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor (370.0 lb/MWh) for 2016 obtained from CPUC GHG Calculator version 3c

Land Use - Based on applicant project description

Construction Phase - Based on applicant project list and schedule

Off-road Equipment - Based on applicant project list

Off-road Equipment - Based on applicant project list

Off-road Equipment - Based on applicant project list

Off-road Equipment - Based on applicant project list

Off-road Equipment - Based on applicant project list

Off-road Equipment - Based on applicant project list

Trips and VMT - 10 miles to landfill, 7.3 miles for cement trucks (Vendor trip length)

Grading - Based on project description

Architectural Coating - Interior = 75 g/L primer, 65 g/L top coat = 70 g/L, Exterior = 60 g/L

Vehicle Trips - Based on traffic report, weekend rate not adjusted

Woodstoves - Assumed no wood burning

Energy Use - No change.

Construction Off-road Equipment Mitigation - Tier 2 along with BMPs

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	60.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	70.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	60.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	70.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	0	150
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 2

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	18.00	89.00
tblConstructionPhase	NumDays	230.00	240.00
tblConstructionPhase	NumDays	20.00	33.00
tblConstructionPhase	NumDays	8.00	44.00
tblConstructionPhase	NumDays	18.00	44.00
tblConstructionPhase	PhaseEndDate	10/16/2015	10/15/2015
tblConstructionPhase	PhaseEndDate	6/16/2015	6/15/2015
tblConstructionPhase	PhaseEndDate	2/28/2014	3/1/2014
tblConstructionPhase	PhaseEndDate	12/16/2015	10/15/2015
tblConstructionPhase	PhaseEndDate	7/16/2014	7/15/2014
tblConstructionPhase	PhaseStartDate	6/16/2015	6/15/2015
tblConstructionPhase	PhaseStartDate	7/16/2014	7/15/2014
tblConstructionPhase	PhaseStartDate	3/2/2014	3/1/2014
tblConstructionPhase	PhaseStartDate	10/16/2015	8/15/2015
tblConstructionPhase	PhaseStartDate	5/2/2014	5/1/2014

tblFireplaces	FireplaceWoodMass	92.40	0.00
tblFireplaces	NumberGas	112.75	144.00
tblFireplaces	NumberWood	28.70	0.00
tblGrading	AcresOfGrading	64.90	4.00
tblGrading	MaterialExported	0.00	3,800.00
tblLandUse	LandUseSquareFeet	132,400.00	135,000.00
tblLandUse	LandUseSquareFeet	205,000.00	280,000.00
tblLandUse	LotAcreage	2.98	0.00
tblLandUse	LotAcreage	5.39	4.04
tblLandUse	Population	586.00	511.00
tblOffRoadEquipment	HorsePower	78.00	60.00
tblOffRoadEquipment	HorsePower	226.00	208.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	89.00	149.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	125.00	89.00
tblOffRoadEquipment	HorsePower	130.00	82.00
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tblOffRoadEquipment	HorsePower	255.00	358.00
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tblOffRoadEquipment	LoadFactor	0.48	0.32

tblOffRoadEquipment	LoadFactor	0.38	0.49
tblOffRoadEquipment	LoadFactor	0.74	0.49
tblOffRoadEquipment	LoadFactor	0.45	0.46
tblOffRoadEquipment	LoadFactor	0.78	0.34
tblOffRoadEquipment	LoadFactor	0.78	0.34
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.70
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tblOffRoadEquipment	UsageHours	8.00	6.40
tblOffRoadEquipment	UsageHours	8.00	3.20
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	5.60
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	6.00	1.60
tblOffRoadEquipment	UsageHours	6.00	1.10
tblOffRoadEquipment	UsageHours	8.00	6.40
tblOffRoadEquipment	UsageHours	8.00	5.60
tblOffRoadEquipment	UsageHours	7.00	3.30

tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.30
tblProjectCharacteristics	CO2IntensityFactor	641.35	370
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripLength	20.00	14.60
tblTripsAndVMT	HaulingTripNumber	0.00	406.00
tblTripsAndVMT	HaulingTripNumber	475.00	376.00
tblTripsAndVMT	HaulingTripNumber	0.00	925.00
tblTripsAndVMT	WorkerTripNumber	20.00	18.00
tblTripsAndVMT	WorkerTripNumber	204.00	203.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblVehicleTrips	WD_TR	6.59	6.66
tblWoodstoves	NumberCatalytic	1.02	0.00
tblWoodstoves	NumberNoncatalytic	1.02	0.00
tblWoodstoves	WoodstoveDayYear	10.82	0.00
tblWoodstoves	WoodstoveWoodMass	954.80	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.4493	4.0167	3.6879	5.1000e-003	0.2450	0.1803	0.4253	0.0915	0.1677	0.2592	0.0000	463.9836	463.9836	0.0758	0.0000	465.5745
2015	1.8242	1.2429	1.7982	3.0600e-003	0.1490	0.0678	0.2168	0.0400	0.0653	0.1053	0.0000	257.1759	257.1759	0.0226	0.0000	257.6512

Total	**2.2735**	**5.2596**	**5.4861**	**8.1600e-003**	**0.3940**	**0.2481**	**0.6420**	**0.1314**	**0.2330**	**0.3644**	**0.0000**	**721.1594**	**721.1594**	**0.0984**	**0.0000**	**723.2257**

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					
2014	0.2058	2.8018	3.0677	5.1000e-003	0.1927	0.0751	0.2678	0.0518	0.0740	0.1257	0.0000	463.9833	463.9833	0.0758	0.0000	465.5742
2015	1.7381	1.1182	1.7623	3.0600e-003	0.1490	0.0355	0.1845	0.0400	0.0348	0.0748	0.0000	257.1758	257.1758	0.0226	0.0000	257.6511
Total	**1.9439**	**3.9200**	**4.8301**	**8.1600e-003**	**0.3417**	**0.1106**	**0.4523**	**0.0917**	**0.1088**	**0.2005**	**0.0000**	**721.1591**	**721.1591**	**0.0984**	**0.0000**	**723.2253**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**14.50**	**25.47**	**11.96**	**0.00**	**13.27**	**55.40**	**29.55**	**30.21**	**53.32**	**44.99**	**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	1.9379	0.0181	1.5465	8.0000e-005		8.8200e-003	8.8200e-003		8.8200e-003	8.8200e-003	0.0000	9.4152	9.4152	2.6800e-003	1.3000e-004	9.5109
Energy	8.9800e-003	0.0768	0.0327	4.9000e-004		6.2100e-003	6.2100e-003		6.2100e-003	6.2100e-003	0.0000	274.1366	274.1366	0.0162	4.6300e-003	275.9137
Mobile	0.8377	1.7772	8.2188	0.0156	1.1289	0.0226	1.1515	0.3018	0.0208	0.3226	0.0000	1,235.9077	1,235.9077	0.0539	0.0000	1,237.0386
Waste						0.0000	0.0000		0.0000	0.0000	19.1421	0.0000	19.1421	1.1313	0.0000	42.8986

Water						0.0000	0.0000		0.0000	0.0000	4.2374	17.0756	21.3130	0.4366	0.0106	33.7524
Total	**2.7846**	**1.8721**	**9.7980**	**0.0162**	**1.1289**	**0.0376**	**1.1665**	**0.3018**	**0.0358**	**0.3376**	**23.3795**	**1,536.5350**	**1,559.9145**	**1.6406**	**0.0153**	**1,599.1142**

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	1.9379	0.0181	1.5465	8.0000e-005		8.8200e-003	8.8200e-003		8.8200e-003	8.8200e-003	0.0000	9.4152	9.4152	2.6800e-003	1.3000e-004	9.5109
Energy	7.9200e-003	0.0677	0.0288	4.3000e-004		5.4800e-003	5.4800e-003		5.4800e-003	5.4800e-003	0.0000	250.1531	250.1531	0.0150	4.2200e-003	251.7763
Mobile	0.8377	1.7772	8.2188	0.0156	1.1289	0.0226	1.1515	0.3018	0.0208	0.3226	0.0000	1,235.9077	1,235.9077	0.0539	0.0000	1,237.0386
Waste						0.0000	0.0000		0.0000	0.0000	19.1421	0.0000	19.1421	1.1313	0.0000	42.8986
Water						0.0000	0.0000		0.0000	0.0000	4.2374	17.0756	21.3130	0.4365	0.0105	33.7457
Total	**2.7835**	**1.8630**	**9.7941**	**0.0161**	**1.1289**	**0.0369**	**1.1658**	**0.3018**	**0.0351**	**0.3369**	**23.3795**	**1,512.5515**	**1,535.9310**	**1.6392**	**0.0149**	**1,574.9701**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.04**	**0.48**	**0.04**	**0.37**	**0.00**	**1.94**	**0.06**	**0.00**	**2.04**	**0.22**	**0.00**	**1.56**	**1.54**	**0.08**	**2.74**	**1.51**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/15/2014	3/1/2014	5	33	
2	Grading	Grading	3/1/2014	5/1/2014	5	44	

3	Trenching	Trenching	5/1/2014	7/15/2014	5	54	
4	Building Construction	Building Construction	7/15/2014	6/15/2015	5	240	
5	Interior Construction	Architectural Coating	6/15/2015	10/15/2015	5	89	
6	Paving	Paving	8/15/2015	10/15/2015	5	44	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 567,000; Residential Outdoor: 189,000; Non-Residential Indoor: 202,500; Non-Residential Outdoor: 67,500

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Crushing/Proc. Equipment	1	3.60	540	0.34
Demolition	Crushing/Proc. Equipment	1	4.20	540	0.34
Demolition	Excavators	2	6.40	157	0.38
Demolition	Rubber Tired Dozers	1	6.40	358	0.40
Demolition	Rubber Tired Loaders	2	5.50	199	0.36
Grading	Excavators	2	3.20	157	0.49
Grading	Graders	1	5.60	162	0.41
Grading	Rubber Tired Dozers	1	5.60	358	0.40
Grading	Scrapers	2	4.50	356	0.37
Grading	Tractors/Loaders/Backhoes	2	4.00	75	0.37
Trenching	Excavators	1	9.10	157	0.38
Trenching	Rubber Tired Dozers	2	6.60	358	0.40
Trenching	Tractors/Loaders/Backhoes	2	6.50	75	0.37
Building Construction	Cranes	1	0.80	208	0.29
Building Construction	Forklifts	2	2.70	149	0.20
Building Construction	Generator Sets	0	0.00	84	0.49
Building Construction	Tractors/Loaders/Backhoes	1	3.30	75	0.37

Building Construction	Welders	2	3.30	46	0.46
Interior Construction	Air Compressors	4	8.70	60	0.32
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	1.60	89	0.42
Paving	Paving Equipment	1	1.60	82	0.36
Paving	Rollers	1	1.10	84	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	8	18.00	0.00	406.00	12.40	7.30	10.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	376.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	5	13.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	6	203.00	44.00	925.00	12.40	7.30	14.60	LD_Mix	HDT_Mix	HHDT
Interior Construction	4	41.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	8.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2014

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	0.0787	0.8446	0.4624	8.0000e-004		0.0377	0.0377		0.0358	0.0358	0.0000	77.9952	77.9952	0.0151	0.0000	78.3132
Total	**0.0787**	**0.8446**	**0.4624**	**8.0000e-004**		**0.0377**	**0.0377**		**0.0358**	**0.0358**	**0.0000**	**77.9952**	**77.9952**	**0.0151**	**0.0000**	**78.3132**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.3600e-003	0.0435	0.0474	8.0000e-005	1.7200e-003	7.3000e-004	2.4500e-003	4.7000e-004	6.8000e-004	1.1500e-003	0.0000	7.3003	7.3003	7.0000e-005	0.0000	7.3019
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	1.3700e-003	1.9500e-003	0.0189	3.0000e-005	2.7000e-003	2.0000e-005	2.7300e-003	7.2000e-004	2.0000e-005	7.4000e-004	0.0000	2.5519	2.5519	1.5000e-004	0.0000	2.5551
Total	**5.7300e-003**	**0.0454**	**0.0663**	**1.1000e-004**	**4.4200e-003**	**7.5000e-004**	**5.1800e-003**	**1.1900e-003**	**7.0000e-004**	**1.8900e-003**	**0.0000**	**9.8522**	**9.8522**	**2.2000e-004**	**0.0000**	**9.8570**

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	0.0229	0.6403	0.4631	8.0000e-004		0.0169	0.0169		0.0169	0.0169	0.0000	77.9951	77.9951	0.0151	0.0000	78.3131

Total	**0.0229**	**0.6403**	**0.4631**	**8.0000e-004**		**0.0169**	**0.0169**		**0.0169**	**0.0169**	**0.0000**	**77.9951**	**77.9951**	**0.0151**	**0.0000**	**78.3131**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.3600e-003	0.0435	0.0474	8.0000e-005	1.7200e-003	7.3000e-004	2.4500e-003	4.7000e-004	6.8000e-004	1.1500e-003	0.0000	7.3003	7.3003	7.0000e-005	0.0000	7.3019
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	1.3700e-003	1.9500e-003	0.0189	3.0000e-005	2.7000e-003	2.0000e-005	2.7300e-003	7.2000e-004	2.0000e-005	7.4000e-004	0.0000	2.5519	2.5519	1.5000e-004	0.0000	2.5551
Total	**5.7300e-003**	**0.0454**	**0.0663**	**1.1000e-004**	**4.4200e-003**	**7.5000e-004**	**5.1800e-003**	**1.1900e-003**	**7.0000e-004**	**1.8900e-003**	**0.0000**	**9.8522**	**9.8522**	**2.2000e-004**	**0.0000**	**9.8570**

3.3 Grading - 2014

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					0.0951	0.0000	0.0951	0.0512	0.0000	0.0512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0859	1.0001	0.6517	7.3000e-004		0.0481	0.0481		0.0442	0.0442	0.0000	70.4443	70.4443	0.0208	0.0000	70.8815
Total	**0.0859**	**1.0001**	**0.6517**	**7.3000e-004**	**0.0951**	**0.0481**	**0.1432**	**0.0512**	**0.0442**	**0.0955**	**0.0000**	**70.4443**	**70.4443**	**0.0208**	**0.0000**	**70.8815**

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	5.4800e-003	0.0758	0.0522	1.4000e-004	3.1800e-003	1.3400e-003	4.5100e-003	8.7000e-004	1.2300e-003	2.1000e-003	0.0000	13.2105	13.2105	1.3000e-004	0.0000	13.2132
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	2.0400e-003	2.8800e-003	0.0281	5.0000e-005	4.0100e-003	4.0000e-005	4.0400e-003	1.0700e-003	3.0000e-005	1.1000e-003	0.0000	3.7806	3.7806	2.3000e-004	0.0000	3.7854
Total	**7.5200e-003**	**0.0787**	**0.0803**	**1.9000e-004**	**7.1900e-003**	**1.3800e-003**	**8.5500e-003**	**1.9400e-003**	**1.2600e-003**	**3.2000e-003**	**0.0000**	**16.9911**	**16.9911**	**3.6000e-004**	**0.0000**	**16.9986**

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					0.0428	0.0000	0.0428	0.0115	0.0000	0.0115	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0227	0.5928	0.4458	7.3000e-004		0.0164	0.0164		0.0163	0.0163	0.0000	70.4442	70.4442	0.0208	0.0000	70.8814
Total	**0.0227**	**0.5928**	**0.4458**	**7.3000e-004**	**0.0428**	**0.0164**	**0.0592**	**0.0115**	**0.0163**	**0.0278**	**0.0000**	**70.4442**	**70.4442**	**0.0208**	**0.0000**	**70.8814**

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	5.4800e-003	0.0758	0.0522	1.4000e-004	3.1800e-003	1.3400e-003	4.5100e-003	8.7000e-004	1.2300e-003	2.1000e-003	0.0000	13.2105	13.2105	1.3000e-004	0.0000	13.2132
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	2.0400e-003	2.8800e-003	0.0281	5.0000e-005	4.0100e-003	4.0000e-005	4.0400e-003	1.0700e-003	3.0000e-005	1.1000e-003	0.0000	3.7806	3.7806	2.3000e-004	0.0000	3.7854
Total	**7.5200e-003**	**0.0787**	**0.0803**	**1.9000e-004**	**7.1900e-003**	**1.3800e-003**	**8.5500e-003**	**1.9400e-003**	**1.2600e-003**	**3.2000e-003**	**0.0000**	**16.9911**	**16.9911**	**3.6000e-004**	**0.0000**	**16.9986**

3.4 Trenching - 2014

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	0.1047	1.1770	0.8778	8.2000e-004		0.0591	0.0591		0.0544	0.0544	0.0000	78.8980	78.8980	0.0233	0.0000	79.3876
Total	**0.1047**	**1.1770**	**0.8778**	**8.2000e-004**		**0.0591**	**0.0591**		**0.0544**	**0.0544**	**0.0000**	**78.8980**	**78.8980**	**0.0233**	**0.0000**	**79.3876**

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	1.6200e-003	2.3000e-003	0.0224	4.0000e-005	3.2000e-003	3.0000e-005	3.2200e-003	8.5000e-004	3.0000e-005	8.8000e-004	0.0000	3.0159	3.0159	1.8000e-004	0.0000	3.0197
Total	**1.6200e-003**	**2.3000e-003**	**0.0224**	**4.0000e-005**	**3.2000e-003**	**3.0000e-005**	**3.2200e-003**	**8.5000e-004**	**3.0000e-005**	**8.8000e-004**	**0.0000**	**3.0159**	**3.0159**	**1.8000e-004**	**0.0000**	**3.0197**

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	0.0259	0.6662	0.4920	8.2000e-004		0.0191	0.0191		0.0189	0.0189	0.0000	78.8979	78.8979	0.0233	0.0000	79.3875
Total	**0.0259**	**0.6662**	**0.4920**	**8.2000e-004**		**0.0191**	**0.0191**		**0.0189**	**0.0189**	**0.0000**	**78.8979**	**78.8979**	**0.0233**	**0.0000**	**79.3875**

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	1.6200e-003	2.3000e-003	0.0224	4.0000e-005	3.2000e-003	3.0000e-005	3.2200e-003	8.5000e-004	3.0000e-005	8.8000e-004	0.0000	3.0159	3.0159	1.8000e-004	0.0000	3.0197
Total	**1.6200e-003**	**2.3000e-003**	**0.0224**	**4.0000e-005**	**3.2000e-003**	**3.0000e-005**	**3.2200e-003**	**8.5000e-004**	**3.0000e-005**	**8.8000e-004**	**0.0000**	**3.0159**	**3.0159**	**1.8000e-004**	**0.0000**	**3.0197**

3.5 Building Construction - 2014

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	0.0597	0.3569	0.2490	3.3000e-004		0.0241	0.0241		0.0229	0.0229	0.0000	28.7175	28.7175	8.5400e-003	0.0000	28.8968
Total	**0.0597**	**0.3569**	**0.2490**	**3.3000e-004**		**0.0241**	**0.0241**		**0.0229**	**0.0229**	**0.0000**	**28.7175**	**28.7175**	**8.5400e-003**	**0.0000**	**28.8968**

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	5.8800e-003	0.0708	0.0597	1.3000e-004	5.0100e-003	1.2300e-003	6.2400e-003	1.3100e-003	1.1300e-003	2.4400e-003	0.0000	12.1651	12.1651	1.2000e-004	0.0000	12.1675
Vendor	0.0424	0.3598	0.4291	6.4000e-004	0.0173	6.9200e-003	0.0243	4.9700e-003	6.3600e-003	0.0113	0.0000	59.5073	59.5073	6.3000e-004	0.0000	59.5205
Worker	0.0573	0.0811	0.7893	1.3100e-003	0.1127	1.0300e-003	0.1138	0.0300	9.4000e-004	0.0309	0.0000	106.3971	106.3971	6.4400e-003	0.0000	106.5322
Total	**0.1056**	**0.5117**	**1.2781**	**2.0800e-003**	**0.1351**	**9.1800e-003**	**0.1443**	**0.0363**	**8.4300e-003**	**0.0447**	**0.0000**	**178.0694**	**178.0694**	**7.1900e-003**	**0.0000**	**178.2202**

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	0.0139	0.2644	0.2198	3.3000e-004		0.0115	0.0115		0.0114	0.0114	0.0000	28.7175	28.7175	8.5400e-003	0.0000	28.8968

Total	**0.0139**	**0.2644**	**0.2198**	**3.3000e-004**		**0.0115**	**0.0115**		**0.0114**	**0.0114**	**0.0000**	**28.7175**	**28.7175**	**8.5400e-003**	**0.0000**	**28.8968**

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	5.8800e-003	0.0708	0.0597	1.3000e-004	5.0100e-003	1.2300e-003	6.2400e-003	1.3100e-003	1.1300e-003	2.4400e-003	0.0000	12.1651	12.1651	1.2000e-004	0.0000	12.1675
Vendor	0.0424	0.3598	0.4291	6.4000e-004	0.0173	6.9200e-003	0.0243	4.9700e-003	6.3600e-003	0.0113	0.0000	59.5073	59.5073	6.3000e-004	0.0000	59.5205
Worker	0.0573	0.0811	0.7893	1.3100e-003	0.1127	1.0300e-003	0.1138	0.0300	9.4000e-004	0.0309	0.0000	106.3971	106.3971	6.4400e-003	0.0000	106.5322
Total	**0.1056**	**0.5117**	**1.2781**	**2.0800e-003**	**0.1351**	**9.1800e-003**	**0.1443**	**0.0363**	**8.4300e-003**	**0.0447**	**0.0000**	**178.0694**	**178.0694**	**7.1900e-003**	**0.0000**	**178.2202**

3.5 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	0.0538	0.3337	0.2370	3.2000e-004		0.0221	0.0221		0.0209	0.0209	0.0000	27.5855	27.5855	7.9800e-003	0.0000	27.7530
Total	**0.0538**	**0.3337**	**0.2370**	**3.2000e-004**		**0.0221**	**0.0221**		**0.0209**	**0.0209**	**0.0000**	**27.5855**	**27.5855**	**7.9800e-003**	**0.0000**	**27.7530**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.7700e-003	0.0589	0.0519	1.3000e-004	4.9800e-003	8.6000e-004	5.8500e-003	1.3100e-003	7.9000e-004	2.1000e-003	0.0000	11.6054	11.6054	1.0000e-004	0.0000	11.6075
Vendor	0.0343	0.2981	0.3733	6.2000e-004	0.0168	4.8500e-003	0.0216	4.8100e-003	4.4600e-003	9.2700e-003	0.0000	56.7930	56.7930	5.1000e-004	0.0000	56.8037
Worker	0.0496	0.0700	0.6808	1.2600e-003	0.1091	9.2000e-004	0.1100	0.0290	8.4000e-004	0.0298	0.0000	99.5252	99.5252	5.6400e-003	0.0000	99.6437
Total	**0.0887**	**0.4270**	**1.1060**	**2.0100e-003**	**0.1308**	**6.6300e-003**	**0.1374**	**0.0351**	**6.0900e-003**	**0.0412**	**0.0000**	**167.9237**	**167.9237**	**6.2500e-003**	**0.0000**	**168.0549**

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	0.0134	0.2554	0.2126	3.2000e-004		0.0111	0.0111		0.0110	0.0110	0.0000	27.5854	27.5854	7.9800e-003	0.0000	27.7530
Total	**0.0134**	**0.2554**	**0.2126**	**3.2000e-004**		**0.0111**	**0.0111**		**0.0110**	**0.0110**	**0.0000**	**27.5854**	**27.5854**	**7.9800e-003**	**0.0000**	**27.7530**

Mitigated Construction Off-Site

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

Hauling	4.7700e-003	0.0589	0.0519	1.3000e-004	4.9800e-003	8.6000e-004	5.8500e-003	1.3100e-003	7.9000e-004	2.1000e-003	0.0000	11.6054	11.6054	1.0000e-004	0.0000	11.6075
Vendor	0.0343	0.2981	0.3733	6.2000e-004	0.0168	4.8500e-003	0.0216	4.8100e-003	4.4600e-003	9.2700e-003	0.0000	56.7930	56.7930	5.1000e-004	0.0000	56.8037
Worker	0.0496	0.0700	0.6808	1.2600e-003	0.1091	9.2000e-004	0.1100	0.0290	8.4000e-004	0.0298	0.0000	99.5252	99.5252	5.6400e-003	0.0000	99.6437
Total	**0.0887**	**0.4270**	**1.1060**	**2.0100e-003**	**0.1308**	**6.6300e-003**	**0.1374**	**0.0351**	**6.0900e-003**	**0.0412**	**0.0000**	**167.9237**	**167.9237**	**6.2500e-003**	**0.0000**	**168.0549**

3.6 Interior 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					
Archit. Coating	1.6050					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0538	0.3402	0.2517	3.9000e-004		0.0292	0.0292		0.0292	0.0292	0.0000	33.7946	33.7946	4.4000e-003	0.0000	33.8870
Total	**1.6588**	**0.3402**	**0.2517**	**3.9000e-004**		**0.0292**	**0.0292**		**0.0292**	**0.0292**	**0.0000**	**33.7946**	**33.7946**	**4.4000e-003**	**0.0000**	**33.8870**

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	7.5600e-003	0.0107	0.1037	1.9000e-004	0.0166	1.4000e-004	0.0168	4.4200e-003	1.3000e-004	4.5500e-003	0.0000	15.1610	15.1610	8.6000e-004	0.0000	15.1791
Total	**7.5600e-003**	**0.0107**	**0.1037**	**1.9000e-004**	**0.0166**	**1.4000e-004**	**0.0168**	**4.4200e-003**	**1.3000e-004**	**4.5500e-003**	**0.0000**	**15.1610**	**15.1610**	**8.6000e-004**	**0.0000**	**15.1791**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.6050					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0151	0.3114	0.2425	3.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	33.7946	33.7946	4.4000e-003	0.0000	33.8870
Total	**1.6201**	**0.3114**	**0.2425**	**3.9000e-004**		**0.0126**	**0.0126**		**0.0126**	**0.0126**	**0.0000**	**33.7946**	**33.7946**	**4.4000e-003**	**0.0000**	**33.8870**

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	7.5600e-003	0.0107	0.1037	1.9000e-004	0.0166	1.4000e-004	0.0168	4.4200e-003	1.3000e-004	4.5500e-003	0.0000	15.1610	15.1610	8.6000e-004	0.0000	15.1791
Total	**7.5600e-003**	**0.0107**	**0.1037**	**1.9000e-004**	**0.0166**	**1.4000e-004**	**0.0168**	**4.4200e-003**	**1.3000e-004**	**4.5500e-003**	**0.0000**	**15.1610**	**15.1610**	**8.6000e-004**	**0.0000**	**15.1791**

3.7 Paving - 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	0.0145	0.1303	0.0898	1.3000e-004		9.6800e-003	9.6800e-003		8.9400e-003	8.9400e-003	0.0000	11.2486	11.2486	3.0600e-003	0.0000	11.3129
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1303**	**0.0898**	**1.3000e-004**		**9.6800e-003**	**9.6800e-003**		**8.9400e-003**	**8.9400e-003**	**0.0000**	**11.2486**	**11.2486**	**3.0600e-003**	**0.0000**	**11.3129**

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	7.3000e-004	1.0300e-003	0.0100	2.0000e-005	1.6000e-003	1.0000e-005	1.6200e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.4625	1.4625	8.0000e-005	0.0000	1.4643
Total	**7.3000e-004**	**1.0300e-003**	**0.0100**	**2.0000e-005**	**1.6000e-003**	**1.0000e-005**	**1.6200e-003**	**4.3000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.4625**	**1.4625**	**8.0000e-005**	**0.0000**	**1.4643**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.5400e-003	0.1127	0.0875	1.3000e-004		5.0500e-003	5.0500e-003		4.9700e-003	4.9700e-003	0.0000	11.2486	11.2486	3.0600e-003	0.0000	11.3129

Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.5400e-003**	**0.1127**	**0.0875**	**1.3000e-004**		**5.0500e-003**	**5.0500e-003**		**4.9700e-003**	**4.9700e-003**	**0.0000**	**11.2486**	**11.2486**	**3.0600e-003**	**0.0000**	**11.3129**

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	7.3000e-004	1.0300e-003	0.0100	2.0000e-005	1.6000e-003	1.0000e-005	1.6200e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.4625	1.4625	8.0000e-005	0.0000	1.4643
Total	**7.3000e-004**	**1.0300e-003**	**0.0100**	**2.0000e-005**	**1.6000e-003**	**1.0000e-005**	**1.6200e-003**	**4.3000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.4625**	**1.4625**	**8.0000e-005**	**0.0000**	**1.4643**

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	0.8377	1.7772	8.2188	0.0156	1.1289	0.0226	1.1515	0.3018	0.0208	0.3226	0.0000	1,235.9077	1,235.9077	0.0539	0.0000	1,237.0386
Unmitigated	0.8377	1.7772	8.2188	0.0156	1.1289	0.0226	1.1515	0.3018	0.0208	0.3226	0.0000	1,235.9077	1,235.9077	0.0539	0.0000	1,237.0386

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,365.30	1,467.80	1244.35	3,041,965	3,041,965
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	1,365.30	1,467.80	1,244.35	3,041,965	3,041,965

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Unenclosed Parking with	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.552322	0.058092	0.185339	0.123855	0.029634	0.004459	0.012625	0.022329	0.001774	0.001272	0.006012	0.000525	0.001763

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

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

Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	171.7286	171.7286	0.0135	2.7800e-003	172.8746
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	185.2238	185.2238	0.0145	3.0000e-003	186.4598
NaturalGas Mitigated	7.9200e-003	0.0677	0.0288	4.3000e-004		5.4800e-003	5.4800e-003		5.4800e-003	5.4800e-003	0.0000	78.4245	78.4245	1.5000e-003	1.4400e-003	78.9018
NaturalGas Unmitigated	8.9800e-003	0.0768	0.0327	4.9000e-004		6.2100e-003	6.2100e-003		6.2100e-003	6.2100e-003	0.0000	88.9128	88.9128	1.7000e-003	1.6300e-003	89.4539

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					
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	1.66616e+006	8.9800e-003	0.0768	0.0327	4.9000e-004		6.2100e-003	6.2100e-003		6.2100e-003	6.2100e-003	0.0000	88.9128	88.9128	1.7000e-003	1.6300e-003	89.4539
Total		**8.9800e-003**	**0.0768**	**0.0327**	**4.9000e-004**		**6.2100e-003**	**6.2100e-003**		**6.2100e-003**	**6.2100e-003**	**0.0000**	**88.9128**	**88.9128**	**1.7000e-003**	**1.6300e-003**	**89.4539**

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					
Apartments Mid Rise	1.46962e+006	7.9200e-003	0.0677	0.0288	4.3000e-004		5.4800e-003	5.4800e-003		5.4800e-003	5.4800e-003	0.0000	78.4245	78.4245	1.5000e-003	1.4400e-003	78.9018
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.9200e-003**	**0.0677**	**0.0288**	**4.3000e-004**		**5.4800e-003**	**5.4800e-003**		**5.4800e-003**	**5.4800e-003**	**0.0000**	**78.4245**	**78.4245**	**1.5000e-003**	**1.4400e-003**	**78.9018**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	722945	121.3312	9.5100e-003	1.9700e-003	122.1409
Unenclosed Parking with Elevator	380700	63.8926	5.0100e-003	1.0400e-003	64.3189
Total		**185.2238**	**0.0145**	**3.0100e-003**	**186.4598**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	678040	113.7948	8.9200e-003	1.8500e-003	114.5542
Unenclosed Parking with Elevator	345195	57.9338	4.5400e-003	9.4000e-004	58.3204
Total		**171.7286**	**0.0135**	**2.7900e-003**	**172.8746**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.9379	0.0181	1.5465	8.0000e-005		8.8200e-003	8.8200e-003		8.8200e-003	8.8200e-003	0.0000	9.4152	9.4152	2.6800e-003	1.3000e-004	9.5109
Unmitigated	1.9379	0.0181	1.5465	8.0000e-005		8.8200e-003	8.8200e-003		8.8200e-003	8.8200e-003	0.0000	9.4152	9.4152	2.6800e-003	1.3000e-004	9.5109

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	0.2675					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.6208					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.0000e-004	0.0000	4.0000e-005	0.0000		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	6.9229	6.9229	1.3000e-004	1.3000e-004	6.9650
Landscaping	0.0489	0.0181	1.5465	8.0000e-005		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003	0.0000	2.4923	2.4923	2.5500e-003	0.0000	2.5459
Total	**1.9379**	**0.0181**	**1.5465**	**8.0000e-005**		**8.8200e-003**	**8.8200e-003**		**8.8200e-003**	**8.8200e-003**	**0.0000**	**9.4152**	**9.4152**	**2.6800e-003**	**1.3000e-004**	**9.5109**

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	0.2675					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	1.6208					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.0000e-004	0.0000	4.0000e-005	0.0000		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	6.9229	6.9229	1.3000e-004	1.3000e-004	6.9650
Landscaping	0.0489	0.0181	1.5465	8.0000e-005		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003	0.0000	2.4923	2.4923	2.5500e-003	0.0000	2.5459
Total	**1.9379**	**0.0181**	**1.5465**	**8.0000e-005**		**8.8200e-003**	**8.8200e-003**		**8.8200e-003**	**8.8200e-003**	**0.0000**	**9.4152**	**9.4152**	**2.6800e-003**	**1.3000e-004**	**9.5109**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	21.3130	0.4365	0.0105	33.7457
Unmitigated	21.3130	0.4366	0.0106	33.7524

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	13.3566 / 8.42045	21.3130	0.4366	0.0106	33.7524
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**21.3130**	**0.4366**	**0.0106**	**33.7524**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	13.3566 / 8.42045	21.3130	0.4365	0.0105	33.7457
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**21.3130**	**0.4365**	**0.0105**	**33.7457**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	19.1421	1.1313	0.0000	42.8986
Unmitigated	19.1421	1.1313	0.0000	42.8986

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	94.3	19.1421	1.1313	0.0000	42.8986
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**19.1421**	**1.1313**	**0.0000**	**42.8986**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	94.3	19.1421	1.1313	0.0000	42.8986
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**19.1421**	**1.1313**	**0.0000**	**42.8986**

9.0 Operational Offroad

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

10.0 Vegetation

Sares Regis Site Sunnyvale - 2016: Applicant Proposed (Tier 2/Tier 4 Combo Constrcution-Only)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	331.00	Space	1.50	132,400.00	0
Apartments Mid Rise	205.00	Dwelling Unit	4.40	205,000.00	586

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	370	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Land Use - Based on applicant project description

Construction Phase - Based on applicant project list and schedule

Off-road Equipment - Based on applicant project list

Off-road Equipment - Based on applicant project list

Off-road Equipment - Based on applicant project list

Off-road Equipment - Based on applicant project list

Off-road Equipment - Based on applicant project list

Off-road Equipment - Based on applicant project list

Trips and VMT - On- and near-site traffic emissions only

Grading - Based on project description

Architectural Coating - Interior = 75 g/L primer, 65 g/L top coat = 70 g/L, Exterior = 60 g/L

Construction Off-road Equipment Mitigation - Tier 2 & 4 along with BMPs

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	60.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	70.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	20.00	89.00
tblConstructionPhase	NumDays	230.00	240.00
tblConstructionPhase	NumDays	20.00	33.00
tblConstructionPhase	NumDays	20.00	44.00
tblConstructionPhase	NumDays	20.00	44.00
tblConstructionPhase	PhaseEndDate	10/16/2015	10/15/2015
tblConstructionPhase	PhaseEndDate	6/16/2015	6/15/2015
tblConstructionPhase	PhaseEndDate	2/28/2014	3/1/2014
tblConstructionPhase	PhaseEndDate	12/16/2015	10/15/2015
tblConstructionPhase	PhaseEndDate	7/16/2014	7/15/2014
tblConstructionPhase	PhaseStartDate	6/16/2015	6/15/2015
tblConstructionPhase	PhaseStartDate	7/16/2014	7/15/2014
tblConstructionPhase	PhaseStartDate	3/2/2014	3/1/2014
tblConstructionPhase	PhaseStartDate	10/16/2015	8/15/2015
tblConstructionPhase	PhaseStartDate	5/2/2014	5/1/2014
tblGrading	AcresOfGrading	64.90	4.00
tblGrading	MaterialExported	0.00	3,800.00
tblLandUse	LotAcreage	2.98	1.50
tblLandUse	LotAcreage	5.39	4.40
tblOffRoadEquipment	HorsePower	78.00	60.00
tblOffRoadEquipment	HorsePower	226.00	208.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	162.00	157.00

tblOffRoadEquipment	HorsePower	89.00	149.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	125.00	89.00
tblOffRoadEquipment	HorsePower	130.00	82.00
tblOffRoadEquipment	HorsePower	80.00	84.00
tblOffRoadEquipment	HorsePower	255.00	358.00
tblOffRoadEquipment	HorsePower	255.00	358.00
tblOffRoadEquipment	HorsePower	97.00	75.00
tblOffRoadEquipment	HorsePower	97.00	75.00
tblOffRoadEquipment	HorsePower	85.00	540.00
tblOffRoadEquipment	HorsePower	85.00	540.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	255.00	358.00
tblOffRoadEquipment	HorsePower	361.00	356.00
tblOffRoadEquipment	HorsePower	97.00	75.00
tblOffRoadEquipment	LoadFactor	0.48	0.32
tblOffRoadEquipment	LoadFactor	0.38	0.49
tblOffRoadEquipment	LoadFactor	0.74	0.49
tblOffRoadEquipment	LoadFactor	0.45	0.46
tblOffRoadEquipment	LoadFactor	0.78	0.34
tblOffRoadEquipment	LoadFactor	0.78	0.34
tblOffRoadEquipment	LoadFactor	0.48	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.70
tblOffRoadEquipment	UsageHours	7.00	0.80
tblOffRoadEquipment	UsageHours	8.00	6.40
tblOffRoadEquipment	UsageHours	8.00	3.20
tblOffRoadEquipment	UsageHours	8.00	2.70
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	5.60
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	8.00	1.10
tblOffRoadEquipment	UsageHours	8.00	6.40
tblOffRoadEquipment	UsageHours	8.00	5.60
tblOffRoadEquipment	UsageHours	7.00	3.30
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	3.30
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripNumber	0.00	406.00
tblTripsAndVMT	HaulingTripNumber	0.00	925.00
tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	VendorTripLength	7.30	0.35

tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripNumber	20.00	18.00
tblVehicleTrips	WD_TR	6.59	6.32

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.4085	3.4880	2.8648	2.8600e-003	0.0996	0.1700	0.2696	0.0525	0.1582	0.2107	0.0000	270.9451	270.9451	0.0687	0.0000	272.3885
2015	1.0443	0.8026	1.0062	9.1000e-004	4.7100e-003	0.0552	0.0599	1.3000e-003	0.0538	0.0551	0.0000	78.0386	78.0386	0.0142	0.0000	78.3358
Total	**1.4528**	**4.2906**	**3.8710**	**3.7700e-003**	**0.1043**	**0.2252**	**0.3295**	**0.0538**	**0.2119**	**0.2657**	**0.0000**	**348.9837**	**348.9837**	**0.0829**	**0.0000**	**350.7243**

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					
2014	0.1717	2.2115	2.2072	2.8600e-003	0.0474	0.0617	0.1091	0.0128	0.0616	0.0744	0.0000	270.9448	270.9448	0.0687	0.0000	272.3882
2015	0.9482	0.4908	0.9716	9.1000e-004	4.7100e-003	0.0142	0.0189	1.3000e-003	0.0141	0.0154	0.0000	78.0385	78.0385	0.0142	0.0000	78.3358
Total	**1.1199**	**2.7024**	**3.1788**	**3.7700e-003**	**0.0521**	**0.0758**	**0.1279**	**0.0141**	**0.0757**	**0.0898**	**0.0000**	**348.9833**	**348.9833**	**0.0829**	**0.0000**	**350.7240**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**22.92**	**37.02**	**17.88**	**0.00**	**50.02**	**66.34**	**61.17**	**73.76**	**64.30**	**66.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/15/2014	3/1/2014	5	33	
2	Grading	Grading	3/1/2014	5/1/2014	5	44	
3	Trenching	Trenching	5/1/2014	7/15/2014	5	54	
4	Building Construction	Building Construction	7/15/2014	6/15/2015	5	240	
5	Interior Construction	Architectural Coating	6/15/2015	10/15/2015	5	89	
6	Paving	Paving	8/15/2015	10/15/2015	5	44	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 415,125; Residential Outdoor: 138,375; Non-Residential Indoor: 198,600; Non-Residential Outdoor: 66,200

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Crushing/Proc. Equipment	1	3.60	540	0.34
Demolition	Crushing/Proc. Equipment	1	4.20	540	0.34
Demolition	Excavators	2	6.40	157	0.38
Demolition	Rubber Tired Dozers	1	6.40	358	0.40
Demolition	Rubber Tired Loaders	2	5.50	199	0.36
Grading	Excavators	2	3.20	157	0.49
Grading	Graders	1	5.60	162	0.41
Grading	Rubber Tired Dozers	1	5.60	358	0.40
Grading	Scrapers	2	4.50	356	0.37
Grading	Tractors/Loaders/Backhoes	2	4.00	75	0.37
Trenching	Excavators	1	9.10	157	0.38
Trenching	Rubber Tired Dozers	2	6.60	358	0.40
Trenching	Tractors/Loaders/Backhoes	2	6.50	75	0.37
Building Construction	Cranes	1	0.80	208	0.29
Building Construction	Forklifts	2	2.70	149	0.20
Building Construction	Generator Sets	0	0.00	84	0.49
Building Construction	Tractors/Loaders/Backhoes	1	3.30	75	0.37
Building Construction	Welders	2	3.30	46	0.46
Interior Construction	Air Compressors	4	8.70	60	0.32
Paving	Pavers	1	1.60	89	0.42
Paving	Paving Equipment	1	1.60	82	0.36
Paving	Rollers	1	1.10	84	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
Demolition	8	18.00	0.00	406.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	376.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT
Trenching	5	13.00	0.00	0.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT

Building Construction	6	203.00	44.00	925.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT
Interior Construction	4	41.00	0.00	0.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2014

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	0.0787	0.8446	0.4624	8.0000e-004		0.0377	0.0377		0.0358	0.0358	0.0000	77.9952	77.9952	0.0151	0.0000	78.3132
Total	**0.0787**	**0.8446**	**0.4624**	**8.0000e-004**		**0.0377**	**0.0377**		**0.0358**	**0.0358**	**0.0000**	**77.9952**	**77.9952**	**0.0151**	**0.0000**	**78.3132**

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	2.8600e-003	6.4300e-003	0.0387	1.0000e-005	6.0000e-005	5.0000e-005	1.1000e-004	2.0000e-005	5.0000e-005	6.0000e-005	0.0000	0.5798	0.5798	1.0000e-005	0.0000	0.5801
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	2.5000e-004	3.3800e-003	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1354	0.1354	2.0000e-005	0.0000	0.1357
Total	**3.7800e-003**	**6.6800e-003**	**0.0421**	**1.0000e-005**	**1.4000e-004**	**5.0000e-005**	**1.9000e-004**	**4.0000e-005**	**5.0000e-005**	**8.0000e-005**	**0.0000**	**0.7152**	**0.7152**	**3.0000e-005**	**0.0000**	**0.7158**

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	0.0386	0.6488	0.4267	8.0000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	77.9951	77.9951	0.0151	0.0000	78.3131
Total	**0.0386**	**0.6488**	**0.4267**	**8.0000e-004**		**0.0216**	**0.0216**		**0.0216**	**0.0216**	**0.0000**	**77.9951**	**77.9951**	**0.0151**	**0.0000**	**78.3131**

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	2.8600e-003	6.4300e-003	0.0387	1.0000e-005	6.0000e-005	5.0000e-005	1.1000e-004	2.0000e-005	5.0000e-005	6.0000e-005	0.0000	0.5798	0.5798	1.0000e-005	0.0000	0.5801
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	2.5000e-004	3.3800e-003	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1354	0.1354	2.0000e-005	0.0000	0.1357

Total	**3.7800e-003**	**6.6800e-003**	**0.0421**	**1.0000e-005**	**1.4000e-004**	**5.0000e-005**	**1.9000e-004**	**4.0000e-005**	**5.0000e-005**	**8.0000e-005**	**0.0000**	**0.7152**	**0.7152**	**3.0000e-005**	**0.0000**	**0.7158**

3.3 Grading - 2014

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					0.0949	0.0000	0.0949	0.0512	0.0000	0.0512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0859	1.0001	0.6517	7.3000e-004		0.0481	0.0481		0.0442	0.0442	0.0000	70.4443	70.4443	0.0208	0.0000	70.8815
Total	**0.0859**	**1.0001**	**0.6517**	**7.3000e-004**	**0.0949**	**0.0481**	**0.1429**	**0.0512**	**0.0442**	**0.0954**	**0.0000**	**70.4443**	**70.4443**	**0.0208**	**0.0000**	**70.8815**

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	2.6500e-003	5.9500e-003	0.0358	1.0000e-005	6.0000e-005	5.0000e-005	1.1000e-004	2.0000e-005	4.0000e-005	6.0000e-005	0.0000	0.5370	0.5370	1.0000e-005	0.0000	0.5372
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	1.3600e-003	3.7000e-004	5.0100e-003	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.2005	0.2005	2.0000e-005	0.0000	0.2011
Total	**4.0100e-003**	**6.3200e-003**	**0.0408**	**1.0000e-005**	**1.8000e-004**	**5.0000e-005**	**2.3000e-004**	**5.0000e-005**	**4.0000e-005**	**1.0000e-004**	**0.0000**	**0.7375**	**0.7375**	**3.0000e-005**	**0.0000**	**0.7383**

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					0.0427	0.0000	0.0427	0.0115	0.0000	0.0115	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0220	0.5913	0.4456	7.3000e-004		0.0159	0.0159		0.0159	0.0159	0.0000	70.4442	70.4442	0.0208	0.0000	70.8814
Total	**0.0220**	**0.5913**	**0.4456**	**7.3000e-004**	**0.0427**	**0.0159**	**0.0586**	**0.0115**	**0.0159**	**0.0274**	**0.0000**	**70.4442**	**70.4442**	**0.0208**	**0.0000**	**70.8814**

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	2.6500e-003	5.9500e-003	0.0358	1.0000e-005	6.0000e-005	5.0000e-005	1.1000e-004	2.0000e-005	4.0000e-005	6.0000e-005	0.0000	0.5370	0.5370	1.0000e-005	0.0000	0.5372
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	1.3600e-003	3.7000e-004	5.0100e-003	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.2005	0.2005	2.0000e-005	0.0000	0.2011
Total	**4.0100e-003**	**6.3200e-003**	**0.0408**	**1.0000e-005**	**1.8000e-004**	**5.0000e-005**	**2.3000e-004**	**5.0000e-005**	**4.0000e-005**	**1.0000e-004**	**0.0000**	**0.7375**	**0.7375**	**3.0000e-005**	**0.0000**	**0.7383**

3.4 Trenching - 2014

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	0.1047	1.1770	0.8778	8.2000e-004		0.0591	0.0591		0.0544	0.0544	0.0000	78.8980	78.8980	0.0233	0.0000	79.3876
Total	**0.1047**	**1.1770**	**0.8778**	**8.2000e-004**		**0.0591**	**0.0591**		**0.0544**	**0.0544**	**0.0000**	**78.8980**	**78.8980**	**0.0233**	**0.0000**	**79.3876**

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	1.0900e-003	3.0000e-004	3.9900e-003	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1600	0.1600	2.0000e-005	0.0000	0.1604
Total	**1.0900e-003**	**3.0000e-004**	**3.9900e-003**	**0.0000**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1600**	**0.1600**	**2.0000e-005**	**0.0000**	**0.1604**

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	0.0246	0.6632	0.4916	8.2000e-004		0.0182	0.0182		0.0182	0.0182	0.0000	78.8979	78.8979	0.0233	0.0000	79.3875
Total	**0.0246**	**0.6632**	**0.4916**	**8.2000e-004**		**0.0182**	**0.0182**		**0.0182**	**0.0182**	**0.0000**	**78.8979**	**78.8979**	**0.0233**	**0.0000**	**79.3875**

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	1.0900e-003	3.0000e-004	3.9900e-003	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1600	0.1600	2.0000e-005	0.0000	0.1604
Total	**1.0900e-003**	**3.0000e-004**	**3.9900e-003**	**0.0000**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1600**	**0.1600**	**2.0000e-005**	**0.0000**	**0.1604**

3.5 Building Construction - 2014

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	0.0597	0.3569	0.2490	3.3000e-004		0.0241	0.0241		0.0229	0.0229	0.0000	28.7175	28.7175	8.5400e-003	0.0000	28.8968
Total	**0.0597**	**0.3569**	**0.2490**	**3.3000e-004**		**0.0241**	**0.0241**		**0.0229**	**0.0229**	**0.0000**	**28.7175**	**28.7175**	**8.5400e-003**	**0.0000**	**28.8968**

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	3.3200e-003	7.4400e-003	0.0448	1.0000e-005	1.2000e-004	6.0000e-005	1.8000e-004	3.0000e-005	5.0000e-005	9.0000e-005	0.0000	0.6715	0.6715	1.0000e-005	0.0000	0.6718
Vendor	0.0291	0.0782	0.3513	8.0000e-005	8.9000e-004	6.8000e-004	1.5800e-003	2.6000e-004	6.2000e-004	8.9000e-004	0.0000	6.9619	6.9619	1.2000e-004	0.0000	6.9645
Worker	0.0383	0.0105	0.1409	7.0000e-005	3.3000e-003	1.3000e-004	3.4300e-003	8.9000e-004	1.2000e-004	1.0200e-003	0.0000	5.6440	5.6440	7.0000e-004	0.0000	5.6586
Total	**0.0707**	**0.0961**	**0.5370**	**1.6000e-004**	**4.3100e-003**	**8.7000e-004**	**5.1900e-003**	**1.1800e-003**	**7.9000e-004**	**2.0000e-003**	**0.0000**	**13.2774**	**13.2774**	**8.3000e-004**	**0.0000**	**13.2950**

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	6.9000e-003	0.1989	0.2195	3.3000e-004		4.9900e-003	4.9900e-003		4.9900e-003	4.9900e-003	0.0000	28.7175	28.7175	8.5400e-003	0.0000	28.8968
Total	**6.9000e-003**	**0.1989**	**0.2195**	**3.3000e-004**		**4.9900e-003**	**4.9900e-003**		**4.9900e-003**	**4.9900e-003**	**0.0000**	**28.7175**	**28.7175**	**8.5400e-003**	**0.0000**	**28.8968**

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	3.3200e-003	7.4400e-003	0.0448	1.0000e-005	1.2000e-004	6.0000e-005	1.8000e-004	3.0000e-005	5.0000e-005	9.0000e-005	0.0000	0.6715	0.6715	1.0000e-005	0.0000	0.6718
Vendor	0.0291	0.0782	0.3513	8.0000e-005	8.9000e-004	6.8000e-004	1.5800e-003	2.6000e-004	6.2000e-004	8.9000e-004	0.0000	6.9619	6.9619	1.2000e-004	0.0000	6.9645
Worker	0.0383	0.0105	0.1409	7.0000e-005	3.3000e-003	1.3000e-004	3.4300e-003	8.9000e-004	1.2000e-004	1.0200e-003	0.0000	5.6440	5.6440	7.0000e-004	0.0000	5.6586

Total	**0.0707**	**0.0961**	**0.5370**	**1.6000e-004**	**4.3100e-003**	**8.7000e-004**	**5.1900e-003**	**1.1800e-003**	**7.9000e-004**	**2.0000e-003**	**0.0000**	**13.2774**	**13.2774**	**8.3000e-004**	**0.0000**	**13.2950**

3.5 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	0.0538	0.3337	0.2370	3.2000e-004		0.0221	0.0221		0.0209	0.0209	0.0000	27.5855	27.5855	7.9800e-003	0.0000	27.7530
Total	**0.0538**	**0.3337**	**0.2370**	**3.2000e-004**		**0.0221**	**0.0221**		**0.0209**	**0.0209**	**0.0000**	**27.5855**	**27.5855**	**7.9800e-003**	**0.0000**	**27.7530**

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	2.6300e-003	6.6000e-003	0.0393	1.0000e-005	1.2000e-004	4.0000e-005	1.7000e-004	3.0000e-005	4.0000e-005	7.0000e-005	0.0000	0.6383	0.6383	1.0000e-005	0.0000	0.6386
Vendor	0.0237	0.0690	0.3093	8.0000e-005	8.6000e-004	4.7000e-004	1.3400e-003	2.5000e-004	4.3000e-004	6.9000e-004	0.0000	6.6525	6.6525	1.1000e-004	0.0000	6.6548
Worker	0.0342	9.0200e-003	0.1222	7.0000e-005	3.1900e-003	1.2000e-004	3.3200e-003	8.6000e-004	1.1000e-004	9.8000e-004	0.0000	5.2848	5.2848	6.0000e-004	0.0000	5.2974
Total	**0.0605**	**0.0846**	**0.4708**	**1.6000e-004**	**4.1700e-003**	**6.3000e-004**	**4.8300e-003**	**1.1400e-003**	**5.8000e-004**	**1.7400e-003**	**0.0000**	**12.5756**	**12.5756**	**7.2000e-004**	**0.0000**	**12.5907**

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	6.6800e-003	0.1923	0.2123	3.2000e-004		4.8300e-003	4.8300e-003		4.8300e-003	4.8300e-003	0.0000	27.5854	27.5854	7.9800e-003	0.0000	27.7530
Total	**6.6800e-003**	**0.1923**	**0.2123**	**3.2000e-004**		**4.8300e-003**	**4.8300e-003**		**4.8300e-003**	**4.8300e-003**	**0.0000**	**27.5854**	**27.5854**	**7.9800e-003**	**0.0000**	**27.7530**

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	2.6300e-003	6.6000e-003	0.0393	1.0000e-005	1.2000e-004	4.0000e-005	1.7000e-004	3.0000e-005	4.0000e-005	7.0000e-005	0.0000	0.6383	0.6383	1.0000e-005	0.0000	0.6386
Vendor	0.0237	0.0690	0.3093	8.0000e-005	8.6000e-004	4.7000e-004	1.3400e-003	2.5000e-004	4.3000e-004	6.9000e-004	0.0000	6.6525	6.6525	1.1000e-004	0.0000	6.6548
Worker	0.0342	9.0200e-003	0.1222	7.0000e-005	3.1900e-003	1.2000e-004	3.3200e-003	8.6000e-004	1.1000e-004	9.8000e-004	0.0000	5.2848	5.2848	6.0000e-004	0.0000	5.2974
Total	**0.0605**	**0.0846**	**0.4708**	**1.6000e-004**	**4.1700e-003**	**6.3000e-004**	**4.8300e-003**	**1.1400e-003**	**5.8000e-004**	**1.7400e-003**	**0.0000**	**12.5756**	**12.5756**	**7.2000e-004**	**0.0000**	**12.5907**

3.6 Interior 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					

Archit. Coating	0.8659					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0538	0.3402	0.2517	3.9000e-004		0.0292	0.0292		0.0292	0.0292	0.0000	33.7946	33.7946	4.4000e-003	0.0000	33.8870
Total	**0.9197**	**0.3402**	**0.2517**	**3.9000e-004**		**0.0292**	**0.0292**		**0.0292**	**0.0292**	**0.0000**	**33.7946**	**33.7946**	**4.4000e-003**	**0.0000**	**33.8870**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2100e-003	1.3700e-003	0.0186	1.0000e-005	4.9000e-004	2.0000e-005	5.1000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	0.8051	0.8051	9.0000e-005	0.0000	0.8070
Total	**5.2100e-003**	**1.3700e-003**	**0.0186**	**1.0000e-005**	**4.9000e-004**	**2.0000e-005**	**5.1000e-004**	**1.3000e-004**	**2.0000e-005**	**1.5000e-004**	**0.0000**	**0.8051**	**0.8051**	**9.0000e-005**	**0.0000**	**0.8070**

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	0.8659					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8700e-003	0.1796	0.2425	3.9000e-004		7.3400e-003	7.3400e-003		7.3400e-003	7.3400e-003	0.0000	33.7946	33.7946	4.4000e-003	0.0000	33.8870
Total	**0.8737**	**0.1796**	**0.2425**	**3.9000e-004**		**7.3400e-003**	**7.3400e-003**		**7.3400e-003**	**7.3400e-003**	**0.0000**	**33.7946**	**33.7946**	**4.4000e-003**	**0.0000**	**33.8870**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2100e-003	1.3700e-003	0.0186	1.0000e-005	4.9000e-004	2.0000e-005	5.1000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	0.8051	0.8051	9.0000e-005	0.0000	0.8070
Total	**5.2100e-003**	**1.3700e-003**	**0.0186**	**1.0000e-005**	**4.9000e-004**	**2.0000e-005**	**5.1000e-004**	**1.3000e-004**	**2.0000e-005**	**1.5000e-004**	**0.0000**	**0.8051**	**0.8051**	**9.0000e-005**	**0.0000**	**0.8070**

3.7 Paving - 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	4.6500e-003	0.0426	0.0263	3.0000e-005		3.2600e-003	3.2600e-003		3.0000e-003	3.0000e-003	0.0000	3.2003	3.2003	9.6000e-004	0.0000	3.2203
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.6500e-003**	**0.0426**	**0.0263**	**3.0000e-005**		**3.2600e-003**	**3.2600e-003**		**3.0000e-003**	**3.0000e-003**	**0.0000**	**3.2003**	**3.2003**	**9.6000e-004**	**0.0000**	**3.2203**

Unmitigated Construction Off-Site

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	1.3000e-004	1.8000e-003	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0777	0.0777	1.0000e-005	0.0000	0.0778
Total	**5.0000e-004**	**1.3000e-004**	**1.8000e-003**	**0.0000**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0777**	**0.0777**	**1.0000e-005**	**0.0000**	**0.0778**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5900e-003	0.0328	0.0255	3.0000e-005		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	3.2002	3.2002	9.6000e-004	0.0000	3.2203
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5900e-003**	**0.0328**	**0.0255**	**3.0000e-005**		**1.3200e-003**	**1.3200e-003**		**1.3200e-003**	**1.3200e-003**	**0.0000**	**3.2002**	**3.2002**	**9.6000e-004**	**0.0000**	**3.2203**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	1.3000e-004	1.8000e-003	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0777	0.0777	1.0000e-005	0.0000	0.0778

Total	**5.0000e-004**	**1.3000e-004**	**1.8000e-003**	**0.0000**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0777**	**0.0777**	**1.0000e-005**	**0.0000**	**0.0778**

Raintree Site, Sunnyvale - 2017: Applicant Proposed (See Next Run for Tier 2/Tier 4 Combo)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	790.00	Space	0.00	288,598.00	0
Apartments Mid Rise	465.00	Dwelling Unit	12.04	613,272.00	1158

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	348.86	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor (348.86 lb/MWh) for 2017 obtained from CPUC GHG Calculator version 3c.

Land Use - Lot acreage from Project Description. Square footage from Project Description. Anticipated population 1,158.

Construction Phase - Anticipated phasing schedule provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list proivded by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list proivded by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Trips and VMT - Demolition = 10 miles to landfill, 7.3 miles for cement trucks (Vendor trip length)

Grading - 5,000 CY export.

Architectural Coating - Interior paint is 75 g/L primer and 50 g/L top coat. Exterior is 50 g/L primer, 50 g/L top coat, 100 g/L gutters and railings (assume gutters railing <10%)

Vehicle Trips - Used weekday project traffic 6.32 trips/DU/day, instead of 6.59. Did not change weekend rate

Woodstoves - No wood burning fireplaces

Energy Use - No change.

Construction Off-road Equipment Mitigation - Tier 2 Equipment and BMPs

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	55.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	63.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	55.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	63.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	0	150
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
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tblConstructionPhase	NumDays	30.00	22.00

tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	10.00	45.00
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tblConstructionPhase	PhaseEndDate	8/22/2016	7/21/2016
tblConstructionPhase	PhaseEndDate	10/20/2016	9/15/2016
tblConstructionPhase	PhaseEndDate	2/17/2015	2/13/2015
tblConstructionPhase	PhaseStartDate	7/22/2016	8/15/2015
tblConstructionPhase	PhaseStartDate	2/14/2015	1/15/2015
tblConstructionPhase	PhaseStartDate	9/17/2016	8/15/2016
tblConstructionPhase	PhaseStartDate	12/17/2014	12/15/2014
tblFireplaces	FireplaceWoodMass	92.40	0.00
tblFireplaces	NumberGas	255.75	321.00
tblFireplaces	NumberWood	65.10	0.00
tblGrading	AcresOfGrading	33.69	12.00
tblGrading	MaterialExported	0.00	5,000.00
tblLandUse	LandUseSquareFeet	316,000.00	288,598.00
tblLandUse	LandUseSquareFeet	465,000.00	613,272.00
tblLandUse	LotAcreage	7.11	0.00
tblLandUse	LotAcreage	12.24	12.04
tblLandUse	Population	1,330.00	1,158.00
tblOffRoadEquipment	HorsePower	78.00	30.00
tblOffRoadEquipment	HorsePower	226.00	208.00
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tblOffRoadEquipment	HorsePower	255.00	358.00
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tblOffRoadEquipment	UsageHours	8.00	5.10
tblOffRoadEquipment	UsageHours	8.00	0.70
tblProjectCharacteristics	CO2IntensityFactor	641.35	348.86
tblProjectCharacteristics	OperationalYear	2014	2017
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripLength	20.00	14.60
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tblTripsAndVMT	HaulingTripNumber	625.00	312.00
tblTripsAndVMT	HaulingTripNumber	0.00	977.00
tblTripsAndVMT	VendorTripNumber	97.00	102.00
tblTripsAndVMT	WorkerTripNumber	456.00	468.00
tblTripsAndVMT	WorkerTripNumber	91.00	94.00
tblVehicleTrips	WD_TR	6.59	6.32
tblWoodstoves	NumberCatalytic	2.33	0.00
tblWoodstoves	NumberNoncatalytic	2.33	0.00
tblWoodstoves	WoodstoveDayYear	10.82	0.00
tblWoodstoves	WoodstoveWoodMass	954.80	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.1980	2.1397	1.5588	1.9300e-003	0.3212	0.1006	0.4218	0.1695	0.0929	0.2624	0.0000	181.7046	181.7046	0.0408	0.0000	182.5613
2015	2.1430	6.6659	8.9353	0.0145	0.9273	0.3189	1.2462	0.3219	0.2998	0.6217	0.0000	1,234.2207	1,234.2207	0.1403	0.0000	1,237.1662
2016	2.6918	3.5464	5.2142	9.1500e-003	0.4433	0.1786	0.6219	0.1189	0.1689	0.2878	0.0000	756.5167	756.5167	0.0826	0.0000	758.2511

Total	**5.0327**	**12.3521**	**15.7083**	**0.0256**	**1.6918**	**0.5980**	**2.2898**	**0.6102**	**0.5617**	**1.1718**	**0.0000**	**2,172.4421**	**2,172.4421**	**0.2636**	**0.0000**	**2,177.9786**

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					
2014	0.0652	1.4028	1.1330	1.9300e-003	0.1527	0.0384	0.1910	0.0189	0.0382	0.0570	0.0000	181.7045	181.7045	0.0408	0.0000	182.5611
2015	1.7140	5.6483	8.5884	0.0145	0.7848	0.1730	0.9578	0.1922	0.1705	0.3627	0.0000	1,234.2202	1,234.2202	0.1403	0.0000	1,237.1657
2016	2.4249	3.2578	5.1059	9.1500e-003	0.4433	0.1092	0.5526	0.1189	0.1081	0.2269	0.0000	756.5164	756.5164	0.0826	0.0000	758.2509
Total	**4.2041**	**10.3089**	**14.8274**	**0.0256**	**1.3808**	**0.3206**	**1.7013**	**0.3300**	**0.3167**	**0.6467**	**0.0000**	**2,172.4411**	**2,172.4411**	**0.2636**	**0.0000**	**2,177.9776**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**16.47**	**16.54**	**5.61**	**0.00**	**18.38**	**46.39**	**25.70**	**45.92**	**43.61**	**44.82**	**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	4.2153	0.0407	3.4949	1.8000e-004		0.0200	0.0200		0.0200	0.0200	0.0000	21.0862	21.0862	6.0000e-003	2.8000e-004	21.2998
Energy	0.0204	0.1742	0.0741	1.1100e-003		0.0141	0.0141		0.0141	0.0141	0.0000	760.2947	760.2947	0.0503	0.0133	765.4756
Mobile	1.6779	3.5704	16.3965	0.0342	2.4673	0.0458	2.5131	0.6596	0.0421	0.7018	0.0000	2,618.8253	2,618.8253	0.1081	0.0000	2,621.0948

Waste						0.0000	0.0000		0.0000	0.0000	43.4198	0.0000	43.4198	2.5660	0.0000	97.3065
Water						0.0000	0.0000		0.0000	0.0000	9.6117	36.5195	46.1312	0.9903	0.0239	74.3474
Total	**5.9136**	**3.7852**	**19.9655**	**0.0355**	**2.4673**	**0.0799**	**2.5472**	**0.6596**	**0.0763**	**0.7359**	**53.0315**	**3,436.7256**	**3,489.7571**	**3.7207**	**0.0375**	**3,579.5241**

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	4.2153	0.0407	3.4949	1.8000e-004		0.0200	0.0200		0.0200	0.0200	0.0000	21.0862	21.0862	6.0000e-003	2.8000e-004	21.2998
Energy	0.0180	0.1536	0.0654	9.8000e-004		0.0124	0.0124		0.0124	0.0124	0.0000	681.5228	681.5228	0.0453	0.0119	686.1698
Mobile	1.6779	3.5704	16.3965	0.0342	2.4673	0.0458	2.5131	0.6596	0.0421	0.7018	0.0000	2,618.8253	2,618.8253	0.1081	0.0000	2,621.0948
Waste						0.0000	0.0000		0.0000	0.0000	43.4198	0.0000	43.4198	2.5660	0.0000	97.3065
Water						0.0000	0.0000		0.0000	0.0000	8.6506	30.9176	39.5681	0.8911	0.0215	64.9489
Total	**5.9112**	**3.7647**	**19.9568**	**0.0354**	**2.4673**	**0.0782**	**2.5455**	**0.6596**	**0.0746**	**0.7342**	**52.0703**	**3,352.3518**	**3,404.4221**	**3.6164**	**0.0337**	**3,490.8198**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.04**	**0.54**	**0.04**	**0.37**	**0.00**	**2.08**	**0.07**	**0.00**	**2.18**	**0.23**	**1.81**	**2.46**	**2.45**	**2.80**	**10.18**	**2.48**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/15/2014	11/14/2014	5	45	

2	Grading	Grading	11/15/2014	12/16/2014	5	22	
3	Trenching/Site Prep	Site Preparation	12/15/2014	2/13/2015	5	45	
4	Building Exterior	Building Construction	1/15/2015	7/21/2016	5	396	
5	Building Interior/Architectural Coating	Architectural Coating	8/15/2015	9/16/2016	5	285	
6	Paving	Paving	8/15/2016	9/15/2016	5	24	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12

Acres of Paving: 0

Residential Indoor: 1,241,876; Residential Outdoor: 413,959; Non-Residential Indoor: 432,897; Non-Residential Outdoor: 144,299

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	1.30	81	0.49
Demolition	Crushing/Proc. Equipment	1	3.30	230	0.78
Demolition	Excavators	3	5.30	157	0.38
Demolition	Rubber Tired Dozers	2	5.30	358	0.40
Demolition	Skid Steer Loaders	2	5.30	45	0.37
Demolition	Sweepers/Scrubbers	1	7.80	64	0.46
Grading	Excavators	2	6.00	157	0.38
Grading	Graders	1	4.90	162	0.41
Grading	Rubber Tired Dozers	1	4.90	358	0.40
Grading	Scrapers	2	4.90	356	0.48
Grading	Skid Steer Loaders	2	5.50	45	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	75	0.37
Trenching/Site Prep	Excavators	1	2.40	30	0.32
Trenching/Site Prep	Rubber Tired Dozers	3	5.10	358	0.40
Trenching/Site Prep	Tractors/Loaders/Backhoes	3	5.10	75	0.37
Trenching/Site Prep	Trenchers	1	2.70	70	0.50
Building Exterior	Aerial Lifts	3	3.80	75	0.31

Building Exterior	Air Compressors	6	3.80	30	0.32
Building Exterior	Cranes	1	3.00	208	0.29
Building Exterior	Forklifts	5	6.00	149	0.20
Building Exterior	Generator Sets	1	6.00	84	0.49
Building Exterior	Pumps	2	2.70	130	0.31
Building Exterior	Pumps	1	2.70	40	0.30
Building Exterior	Skid Steer Loaders	2	3.80	45	0.37
Building Exterior	Tractors/Loaders/Backhoes	3	4.50	75	0.37
Building Exterior	Welders	1	0.70	46	0.30
Building Interior/Architectural Coating	Air Compressors	5	5.60	30	0.32
Building Interior/Architectural Coating	Other Construction Equipment	2	5.60	30	0.32
Paving	Pavers	2	2.50	89	0.42
Paving	Paving Equipment	2	2.50	82	0.36
Paving	Rollers	2	2.50	84	0.38
Paving	Sweepers/Scrubbers	1	4.00	64	0.46

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	10	25.00	0.00	792.00	12.40	7.30	10.00	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	312.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching/Site Prep	8	20.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Exterior	25	468.00	102.00	977.00	12.40	7.30	14.60	LD_Mix	HDT_Mix	HHDT
Building Interior/Architectural	7	94.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2014

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	0.1007	1.0823	0.7396	9.0000e-004		0.0534	0.0534		0.0495	0.0495	0.0000	84.3084	84.3084	0.0212	0.0000	84.7529
Total	**0.1007**	**1.0823**	**0.7396**	**9.0000e-004**		**0.0534**	**0.0534**		**0.0495**	**0.0495**	**0.0000**	**84.3084**	**84.3084**	**0.0212**	**0.0000**	**84.7529**

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	8.5100e-003	0.0848	0.0924	1.5000e-004	3.3500e-003	1.4300e-003	4.7800e-003	9.2000e-004	1.3200e-003	2.2400e-003	0.0000	14.2410	14.2410	1.4000e-004	0.0000	14.2440
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	2.6000e-003	3.6800e-003	0.0359	6.0000e-005	5.1200e-003	5.0000e-005	5.1700e-003	1.3600e-003	4.0000e-005	1.4000e-003	0.0000	4.8331	4.8331	2.9000e-004	0.0000	4.8393
Total	**0.0111**	**0.0885**	**0.1283**	**2.1000e-004**	**8.4700e-003**	**1.4800e-003**	**9.9500e-003**	**2.2800e-003**	**1.3600e-003**	**3.6400e-003**	**0.0000**	**19.0741**	**19.0741**	**4.3000e-004**	**0.0000**	**19.0833**

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	0.0273	0.7103	0.5337	9.0000e-004		0.0204	0.0204		0.0204	0.0204	0.0000	84.3083	84.3083	0.0212	0.0000	84.7528
Total	**0.0273**	**0.7103**	**0.5337**	**9.0000e-004**		**0.0204**	**0.0204**		**0.0204**	**0.0204**	**0.0000**	**84.3083**	**84.3083**	**0.0212**	**0.0000**	**84.7528**

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	8.5100e-003	0.0848	0.0924	1.5000e-004	3.3500e-003	1.4300e-003	4.7800e-003	9.2000e-004	1.3200e-003	2.2400e-003	0.0000	14.2410	14.2410	1.4000e-004	0.0000	14.2440
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	2.6000e-003	3.6800e-003	0.0359	6.0000e-005	5.1200e-003	5.0000e-005	5.1700e-003	1.3600e-003	4.0000e-005	1.4000e-003	0.0000	4.8331	4.8331	2.9000e-004	0.0000	4.8393
Total	**0.0111**	**0.0885**	**0.1283**	**2.1000e-004**	**8.4700e-003**	**1.4800e-003**	**9.9500e-003**	**2.2800e-003**	**1.3600e-003**	**3.6400e-003**	**0.0000**	**19.0741**	**19.0741**	**4.3000e-004**	**0.0000**	**19.0833**

3.3 Grading - 2014

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					0.0472	0.0000	0.0472	0.0230	0.0000	0.0230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0526	0.6050	0.3979	4.7000e-004		0.0292	0.0292		0.0269	0.0269	0.0000	45.2374	45.2374	0.0134	0.0000	45.5182
Total	**0.0526**	**0.6050**	**0.3979**	**4.7000e-004**	**0.0472**	**0.0292**	**0.0765**	**0.0230**	**0.0269**	**0.0499**	**0.0000**	**45.2374**	**45.2374**	**0.0134**	**0.0000**	**45.5182**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5500e-003	0.0629	0.0433	1.2000e-004	2.6400e-003	1.1100e-003	3.7400e-003	7.2000e-004	1.0200e-003	1.7400e-003	0.0000	10.9619	10.9619	1.0000e-004	0.0000	10.9641
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	1.2700e-003	1.8000e-003	0.0175	3.0000e-005	2.5000e-003	2.0000e-005	2.5300e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3629	2.3629	1.4000e-004	0.0000	2.3659
Total	**5.8200e-003**	**0.0647**	**0.0609**	**1.5000e-004**	**5.1400e-003**	**1.1300e-003**	**6.2700e-003**	**1.3900e-003**	**1.0400e-003**	**2.4300e-003**	**0.0000**	**13.3248**	**13.3248**	**2.4000e-004**	**0.0000**	**13.3300**

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					0.0213	0.0000	0.0213	2.0700e-003	0.0000	2.0700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0149	0.3826	0.2914	4.7000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	45.2374	45.2374	0.0134	0.0000	45.5181

Total	**0.0149**	**0.3826**	**0.2914**	**4.7000e-004**	**0.0213**	**0.0111**	**0.0324**	**2.0700e-003**	**0.0111**	**0.0132**	**0.0000**	**45.2374**	**45.2374**	**0.0134**	**0.0000**	**45.5181**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5500e-003	0.0629	0.0433	1.2000e-004	2.6400e-003	1.1100e-003	3.7400e-003	7.2000e-004	1.0200e-003	1.7400e-003	0.0000	10.9619	10.9619	1.0000e-004	0.0000	10.9641
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	1.2700e-003	1.8000e-003	0.0175	3.0000e-005	2.5000e-003	2.0000e-005	2.5300e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3629	2.3629	1.4000e-004	0.0000	2.3659
Total	**5.8200e-003**	**0.0647**	**0.0609**	**1.5000e-004**	**5.1400e-003**	**1.1300e-003**	**6.2700e-003**	**1.3900e-003**	**1.0400e-003**	**2.4300e-003**	**0.0000**	**13.3248**	**13.3248**	**2.4000e-004**	**0.0000**	**13.3300**

3.4 Trenching/Site Prep - 2014

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					0.2591	0.0000	0.2591	0.1424	0.0000	0.1424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0271	0.2984	0.2239	1.9000e-004		0.0154	0.0154		0.0141	0.0141	0.0000	18.6429	18.6429	5.5100e-003	0.0000	18.7586
Total	**0.0271**	**0.2984**	**0.2239**	**1.9000e-004**	**0.2591**	**0.0154**	**0.2745**	**0.1424**	**0.0141**	**0.1566**	**0.0000**	**18.6429**	**18.6429**	**5.5100e-003**	**0.0000**	**18.7586**

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	6.0000e-004	8.5000e-004	8.2900e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.1170	1.1170	7.0000e-005	0.0000	1.1184
Total	**6.0000e-004**	**8.5000e-004**	**8.2900e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.1170**	**1.1170**	**7.0000e-005**	**0.0000**	**1.1184**

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					0.1166	0.0000	0.1166	0.0128	0.0000	0.0128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5700e-003	0.1559	0.1105	1.9000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	18.6429	18.6429	5.5100e-003	0.0000	18.7586
Total	**5.5700e-003**	**0.1559**	**0.1105**	**1.9000e-004**	**0.1166**	**4.2800e-003**	**0.1209**	**0.0128**	**4.2800e-003**	**0.0171**	**0.0000**	**18.6429**	**18.6429**	**5.5100e-003**	**0.0000**	**18.7586**

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	6.0000e-004	8.5000e-004	8.2900e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.1170	1.1170	7.0000e-005	0.0000	1.1184
Total	**6.0000e-004**	**8.5000e-004**	**8.2900e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.1170**	**1.1170**	**7.0000e-005**	**0.0000**	**1.1184**

3.4 Trenching/Site Prep - 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					0.2591	0.0000	0.2591	0.1424	0.0000	0.1424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0666	0.7272	0.5463	4.8000e-004		0.0374	0.0374		0.0344	0.0344	0.0000	45.4054	45.4054	0.0136	0.0000	45.6900
Total	**0.0666**	**0.7272**	**0.5463**	**4.8000e-004**	**0.2591**	**0.0374**	**0.2965**	**0.1424**	**0.0344**	**0.1768**	**0.0000**	**45.4054**	**45.4054**	**0.0136**	**0.0000**	**45.6900**

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	1.3300e-003	1.8700e-003	0.0182	3.0000e-005	2.9100e-003	2.0000e-005	2.9400e-003	7.7000e-004	2.0000e-005	8.0000e-004	0.0000	2.6591	2.6591	1.5000e-004	0.0000	2.6623
Total	**1.3300e-003**	**1.8700e-003**	**0.0182**	**3.0000e-005**	**2.9100e-003**	**2.0000e-005**	**2.9400e-003**	**7.7000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.6591**	**2.6591**	**1.5000e-004**	**0.0000**	**2.6623**

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					0.1166	0.0000	0.1166	0.0128	0.0000	0.0128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0137	0.3836	0.2720	4.8000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	45.4053	45.4053	0.0136	0.0000	45.6900
Total	**0.0137**	**0.3836**	**0.2720**	**4.8000e-004**	**0.1166**	**0.0105**	**0.1272**	**0.0128**	**0.0105**	**0.0234**	**0.0000**	**45.4053**	**45.4053**	**0.0136**	**0.0000**	**45.6900**

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	1.3300e-003	1.8700e-003	0.0182	3.0000e-005	2.9100e-003	2.0000e-005	2.9400e-003	7.7000e-004	2.0000e-005	8.0000e-004	0.0000	2.6591	2.6591	1.5000e-004	0.0000	2.6623
Total	**1.3300e-003**	**1.8700e-003**	**0.0182**	**3.0000e-005**	**2.9100e-003**	**2.0000e-005**	**2.9400e-003**	**7.7000e-004**	**2.0000e-005**	**8.0000e-004**	**0.0000**	**2.6591**	**2.6591**	**1.5000e-004**	**0.0000**	**2.6623**

3.5 Building Exterior - 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	0.4698	3.7976	2.6146	3.7800e-003		0.2321	0.2321		0.2190	0.2190	0.0000	342.3557	342.3557	0.0878	0.0000	344.1986
Total	**0.4698**	**3.7976**	**2.6146**	**3.7800e-003**		**0.2321**	**0.2321**		**0.2190**	**0.2190**	**0.0000**	**342.3557**	**342.3557**	**0.0878**	**0.0000**	**344.1986**

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	6.4900e-003	0.0802	0.0706	1.7000e-004	5.4800e-003	1.1700e-003	6.6500e-003	1.4600e-003	1.0800e-003	2.5400e-003	0.0000	15.8024	15.8024	1.4000e-004	0.0000	15.8052
Vendor	0.1693	1.4699	1.8406	3.0500e-003	0.0827	0.0239	0.1066	0.0237	0.0220	0.0457	0.0000	280.0490	280.0490	2.5200e-003	0.0000	280.1019
Worker	0.2435	0.3434	3.3387	6.2000e-003	0.5348	4.5200e-003	0.5393	0.1422	4.1400e-003	0.1464	0.0000	488.0616	488.0616	0.0277	0.0000	488.6424
Total	**0.4192**	**1.8935**	**5.2499**	**9.4200e-003**	**0.6229**	**0.0296**	**0.6525**	**0.1674**	**0.0272**	**0.1946**	**0.0000**	**783.9129**	**783.9129**	**0.0303**	**0.0000**	**784.5495**

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	0.1520	3.1519	2.6154	3.7800e-003		0.1209	0.1209		0.1209	0.1209	0.0000	342.3553	342.3553	0.0878	0.0000	344.1982

Total	**0.1520**	**3.1519**	**2.6154**	**3.7800e-003**		**0.1209**	**0.1209**		**0.1209**	**0.1209**	**0.0000**	**342.3553**	**342.3553**	**0.0878**	**0.0000**	**344.1982**

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	6.4900e-003	0.0802	0.0706	1.7000e-004	5.4800e-003	1.1700e-003	6.6500e-003	1.4600e-003	1.0800e-003	2.5400e-003	0.0000	15.8024	15.8024	1.4000e-004	0.0000	15.8052
Vendor	0.1693	1.4699	1.8406	3.0500e-003	0.0827	0.0239	0.1066	0.0237	0.0220	0.0457	0.0000	280.0490	280.0490	2.5200e-003	0.0000	280.1019
Worker	0.2435	0.3434	3.3387	6.2000e-003	0.5348	4.5200e-003	0.5393	0.1422	4.1400e-003	0.1464	0.0000	488.0616	488.0616	0.0277	0.0000	488.6424
Total	**0.4192**	**1.8935**	**5.2499**	**9.4200e-003**	**0.6229**	**0.0296**	**0.6525**	**0.1674**	**0.0272**	**0.1946**	**0.0000**	**783.9129**	**783.9129**	**0.0303**	**0.0000**	**784.5495**

3.5 Building Exterior - 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	0.2498	2.0483	1.4898	2.1900e-003		0.1226	0.1226		0.1156	0.1156	0.0000	196.3141	196.3141	0.0497	0.0000	197.3576
Total	**0.2498**	**2.0483**	**1.4898**	**2.1900e-003**		**0.1226**	**0.1226**		**0.1156**	**0.1156**	**0.0000**	**196.3141**	**196.3141**	**0.0497**	**0.0000**	**197.3576**

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	3.3500e-003	0.0400	0.0385	1.0000e-004	5.0800e-003	5.1000e-004	5.5900e-003	1.3100e-003	4.7000e-004	1.7800e-003	0.0000	9.0248	9.0248	7.0000e-005	0.0000	9.0263
Vendor	0.0878	0.7384	0.9998	1.7600e-003	0.0478	0.0111	0.0588	0.0137	0.0102	0.0239	0.0000	159.9211	159.9211	1.2900e-003	0.0000	159.9481
Worker	0.1263	0.1776	1.7250	3.5800e-003	0.3089	2.4700e-003	0.3114	0.0822	2.2600e-003	0.0844	0.0000	272.1982	272.1982	0.0146	0.0000	272.5037
Total	**0.2174**	**0.9560**	**2.7634**	**5.4400e-003**	**0.3618**	**0.0141**	**0.3758**	**0.0972**	**0.0129**	**0.1101**	**0.0000**	**441.1441**	**441.1441**	**0.0159**	**0.0000**	**441.4780**

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	0.0878	1.8208	1.5109	2.1900e-003		0.0698	0.0698		0.0698	0.0698	0.0000	196.3139	196.3139	0.0497	0.0000	197.3573
Total	**0.0878**	**1.8208**	**1.5109**	**2.1900e-003**		**0.0698**	**0.0698**		**0.0698**	**0.0698**	**0.0000**	**196.3139**	**196.3139**	**0.0497**	**0.0000**	**197.3573**

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	3.3500e-003	0.0400	0.0385	1.0000e-004	5.0800e-003	5.1000e-004	5.5900e-003	1.3100e-003	4.7000e-004	1.7800e-003	0.0000	9.0248	9.0248	7.0000e-005	0.0000	9.0263
Vendor	0.0878	0.7384	0.9998	1.7600e-003	0.0478	0.0111	0.0588	0.0137	0.0102	0.0239	0.0000	159.9211	159.9211	1.2900e-003	0.0000	159.9481
Worker	0.1263	0.1776	1.7250	3.5800e-003	0.3089	2.4700e-003	0.3114	0.0822	2.2600e-003	0.0844	0.0000	272.1982	272.1982	0.0146	0.0000	272.5037
Total	**0.2174**	**0.9560**	**2.7634**	**5.4400e-003**	**0.3618**	**0.0141**	**0.3758**	**0.0972**	**0.0129**	**0.1101**	**0.0000**	**441.1441**	**441.1441**	**0.0159**	**0.0000**	**441.4780**

3.6 Building Interior/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	1.0966					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0702	0.2185	0.2417	2.7000e-004		0.0194	0.0194		0.0189	0.0189	0.0000	21.2226	21.2226	6.2900e-003	0.0000	21.3547
Total	**1.1667**	**0.2185**	**0.2417**	**2.7000e-004**		**0.0194**	**0.0194**		**0.0189**	**0.0189**	**0.0000**	**21.2226**	**21.2226**	**6.2900e-003**	**0.0000**	**21.3547**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0193	0.0272	0.2645	4.9000e-004	0.0424	3.6000e-004	0.0427	0.0113	3.3000e-004	0.0116	0.0000	38.6650	38.6650	2.1900e-003	0.0000	38.7110
Total	**0.0193**	**0.0272**	**0.2645**	**4.9000e-004**	**0.0424**	**3.6000e-004**	**0.0427**	**0.0113**	**3.3000e-004**	**0.0116**	**0.0000**	**38.6650**	**38.6650**	**2.1900e-003**	**0.0000**	**38.7110**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.0966					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0119	0.1901	0.1684	2.7000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	21.2226	21.2226	6.2900e-003	0.0000	21.3547
Total	**1.1085**	**0.1901**	**0.1684**	**2.7000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**	**0.0000**	**21.2226**	**21.2226**	**6.2900e-003**	**0.0000**	**21.3547**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0193	0.0272	0.2645	4.9000e-004	0.0424	3.6000e-004	0.0427	0.0113	3.3000e-004	0.0116	0.0000	38.6650	38.6650	2.1900e-003	0.0000	38.7110
Total	**0.0193**	**0.0272**	**0.2645**	**4.9000e-004**	**0.0424**	**3.6000e-004**	**0.0427**	**0.0113**	**3.3000e-004**	**0.0116**	**0.0000**	**38.6650**	**38.6650**	**2.1900e-003**	**0.0000**	**38.7110**

3.6 Building Interior/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	2.0602					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1203	0.3991	0.4436	5.1000e-004		0.0337	0.0337		0.0329	0.0329	0.0000	39.7520	39.7520	0.0109	0.0000	39.9813
Total	**2.1805**	**0.3991**	**0.4436**	**5.1000e-004**		**0.0337**	**0.0337**		**0.0329**	**0.0329**	**0.0000**	**39.7520**	**39.7520**	**0.0109**	**0.0000**	**39.9813**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0325	0.0458	0.4445	9.2000e-004	0.0796	6.4000e-004	0.0802	0.0212	5.8000e-004	0.0218	0.0000	70.1314	70.1314	3.7500e-003	0.0000	70.2101
Total	**0.0325**	**0.0458**	**0.4445**	**9.2000e-004**	**0.0796**	**6.4000e-004**	**0.0802**	**0.0212**	**5.8000e-004**	**0.0218**	**0.0000**	**70.1314**	**70.1314**	**3.7500e-003**	**0.0000**	**70.2101**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.0602					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.0224	0.3572	0.3163	5.1000e-004		0.0216	0.0216		0.0216	0.0216	0.0000	39.7519	39.7519	0.0109	0.0000	39.9812
Total	**2.0826**	**0.3572**	**0.3163**	**5.1000e-004**		**0.0216**	**0.0216**		**0.0216**	**0.0216**	**0.0000**	**39.7519**	**39.7519**	**0.0109**	**0.0000**	**39.9812**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0325	0.0458	0.4445	9.2000e-004	0.0796	6.4000e-004	0.0802	0.0212	5.8000e-004	0.0218	0.0000	70.1314	70.1314	3.7500e-003	0.0000	70.2101
Total	**0.0325**	**0.0458**	**0.4445**	**9.2000e-004**	**0.0796**	**6.4000e-004**	**0.0802**	**0.0212**	**5.8000e-004**	**0.0218**	**0.0000**	**70.1314**	**70.1314**	**3.7500e-003**	**0.0000**	**70.2101**

3.7 Paving - 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	0.0107	0.0961	0.0620	8.0000e-005		7.5500e-003	7.5500e-003		6.9500e-003	6.9500e-003	0.0000	7.4423	7.4423	2.2400e-003	0.0000	7.4895
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0107**	**0.0961**	**0.0620**	**8.0000e-005**		**7.5500e-003**	**7.5500e-003**		**6.9500e-003**	**6.9500e-003**	**0.0000**	**7.4423**	**7.4423**	**2.2400e-003**	**0.0000**	**7.4895**

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	8.0000e-004	1.1300e-003	0.0110	2.0000e-005	1.9700e-003	2.0000e-005	1.9800e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7328	1.7328	9.0000e-005	0.0000	1.7348
Total	**8.0000e-004**	**1.1300e-003**	**0.0110**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9800e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7328**	**1.7328**	**9.0000e-005**	**0.0000**	**1.7348**

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	3.7200e-003	0.0769	0.0599	8.0000e-005		3.1100e-003	3.1100e-003		3.1100e-003	3.1100e-003	0.0000	7.4423	7.4423	2.2400e-003	0.0000	7.4895
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.7200e-003**	**0.0769**	**0.0599**	**8.0000e-005**		**3.1100e-003**	**3.1100e-003**		**3.1100e-003**	**3.1100e-003**	**0.0000**	**7.4423**	**7.4423**	**2.2400e-003**	**0.0000**	**7.4895**

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	8.0000e-004	1.1300e-003	0.0110	2.0000e-005	1.9700e-003	2.0000e-005	1.9800e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7328	1.7328	9.0000e-005	0.0000	1.7348
Total	**8.0000e-004**	**1.1300e-003**	**0.0110**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9800e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7328**	**1.7328**	**9.0000e-005**	**0.0000**	**1.7348**

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	1.6779	3.5704	16.3965	0.0342	2.4673	0.0458	2.5131	0.6596	0.0421	0.7018	0.0000	2,618.8253	2,618.8253	0.1081	0.0000	2,621.0948
Unmitigated	1.6779	3.5704	16.3965	0.0342	2.4673	0.0458	2.5131	0.6596	0.0421	0.7018	0.0000	2,618.8253	2,618.8253	0.1081	0.0000	2,621.0948

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,938.80	3,329.40	2822.55	6,647,970	6,647,970
Enclosed Parking Structure	0.00	0.00	0.00		
Total	2,938.80	3,329.40	2,822.55	6,647,970	6,647,970

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3

Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.551854	0.058218	0.185395	0.123453	0.029544	0.004438	0.012761	0.022956	0.001780	0.001269	0.006045	0.000523	0.001763

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	503.6331	503.6331	0.0419	8.6600e-003	507.1975
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	558.6145	558.6145	0.0464	9.6100e-003	562.5680
NaturalGas Mitigated	0.0180	0.1536	0.0654	9.8000e-004		0.0124	0.0124		0.0124	0.0124	0.0000	177.8897	177.8897	3.4100e-003	3.2600e-003	178.9723
NaturalGas Unmitigated	0.0204	0.1742	0.0741	1.1100e-003		0.0141	0.0141		0.0141	0.0141	0.0000	201.6802	201.6802	3.8700e-003	3.7000e-003	202.9075

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					
Apartments Mid Rise	3.77934e+006	0.0204	0.1742	0.0741	1.1100e-003		0.0141	0.0141		0.0141	0.0141	0.0000	201.6802	201.6802	3.8700e-003	3.7000e-003	202.9075
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0204**	**0.1742**	**0.0741**	**1.1100e-003**		**0.0141**	**0.0141**		**0.0141**	**0.0141**	**0.0000**	**201.6802**	**201.6802**	**3.8700e-003**	**3.7000e-003**	**202.9075**

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					
Apartments Mid Rise	3.33353e+006	0.0180	0.1536	0.0654	9.8000e-004		0.0124	0.0124		0.0124	0.0124	0.0000	177.8897	177.8897	3.4100e-003	3.2600e-003	178.9723
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0180**	**0.1536**	**0.0654**	**9.8000e-004**		**0.0124**	**0.0124**		**0.0124**	**0.0124**	**0.0000**	**177.8897**	**177.8897**	**3.4100e-003**	**3.2600e-003**	**178.9723**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.63985e+006	259.4903	0.0216	4.4600e-003	261.3268
Enclosed Parking Structure	1.89032e+006	299.1242	0.0249	5.1400e-003	301.2412

Total		**558.6145**	**0.0464**	**9.6000e-003**	**562.5680**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.53799e+006	243.3722	0.0202	4.1900e-003	245.0947
Enclosed Parking Structure	1.64472e+006	260.2609	0.0216	4.4800e-003	262.1028
Total		**503.6331**	**0.0419**	**8.6700e-003**	**507.1975**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.2153	0.0407	3.4949	1.8000e-004		0.0200	0.0200		0.0200	0.0200	0.0000	21.0862	21.0862	6.0000e-003	2.8000e-004	21.2998
Unmitigated	4.2153	0.0407	3.4949	1.8000e-004		0.0200	0.0200		0.0200	0.0200	0.0000	21.0862	21.0862	6.0000e-003	2.8000e-004	21.2998

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	0.5822					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.5223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5600e-003	0.0000	9.0000e-005	0.0000		1.0800e-003	1.0800e-003		1.0700e-003	1.0700e-003	0.0000	15.4322	15.4322	3.0000e-004	2.8000e-004	15.5261
Landscaping	0.1093	0.0407	3.4949	1.8000e-004		0.0190	0.0190		0.0190	0.0190	0.0000	5.6540	5.6540	5.7000e-003	0.0000	5.7737
Total	**4.2153**	**0.0407**	**3.4949**	**1.8000e-004**		**0.0200**	**0.0200**		**0.0200**	**0.0200**	**0.0000**	**21.0862**	**21.0862**	**6.0000e-003**	**2.8000e-004**	**21.2999**

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	0.5822					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.5223					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5600e-003	0.0000	9.0000e-005	0.0000		1.0800e-003	1.0800e-003		1.0700e-003	1.0700e-003	0.0000	15.4322	15.4322	3.0000e-004	2.8000e-004	15.5261
Landscaping	0.1093	0.0407	3.4949	1.8000e-004		0.0190	0.0190		0.0190	0.0190	0.0000	5.6540	5.6540	5.7000e-003	0.0000	5.7737
Total	**4.2153**	**0.0407**	**3.4949**	**1.8000e-004**		**0.0200**	**0.0200**		**0.0200**	**0.0200**	**0.0000**	**21.0862**	**21.0862**	**6.0000e-003**	**2.8000e-004**	**21.2999**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	39.5681	0.8911	0.0215	64.9489
Unmitigated	46.1312	0.9903	0.0239	74.3474

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	30.2966 / 19.1	46.1312	0.9903	0.0239	74.3474
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**46.1312**	**0.9903**	**0.0239**	**74.3474**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	27.267 / 17.19	39.5681	0.8911	0.0215	64.9489

Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**39.5681**	**0.8911**	**0.0215**	**64.9489**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	43.4198	2.5660	0.0000	97.3065
Unmitigated	43.4198	2.5660	0.0000	97.3065

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	213.9	43.4198	2.5660	0.0000	97.3065
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		**43.4198**	**2.5660**	**0.0000**	**97.3065**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	213.9	43.4198	2.5660	0.0000	97.3065
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		**43.4198**	**2.5660**	**0.0000**	**97.3065**

9.0 Operational Offroad

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

10.0 Vegetation

Raintree Site, Sunnyvale - 2017: Applicant Proposed (Tier 2/Tier 4 Combo Construction-Only)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	790.00	Space	0.00	316,000.00	0
Apartments Mid Rise	465.00	Dwelling Unit	12.04	901,870.00	1158

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	348.86	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Land Use - Lot acreage from Project Description. Square footage from Project Description.

Construction Phase - Anticipated phasing schedule provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list proivded by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Off-road Equipment - Proposed equipment list proivded by project applicant.

Off-road Equipment - Proposed equipment list provided by project applicant.

Trips and VMT - Only on- and near-site travel emissions

Grading - 5,000 CY export.

Architectural Coating - Interior paint is 75 g/L primer and 50 g/L top coat. Exterior is 50 g/L primer, 50 g/L top coat, 100 g/L gutters and railings (assume gutters railing <10%).

Construction Off-road Equipment Mitigation - Tier 2 & 4 Equipment and BMPs

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	55.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	63.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	20.00	285.00
tblConstructionPhase	NumDays	300.00	396.00
tblConstructionPhase	NumDays	20.00	45.00
tblConstructionPhase	NumDays	30.00	22.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	PhaseEndDate	8/24/2017	9/16/2016
tblConstructionPhase	PhaseEndDate	8/22/2016	7/21/2016
tblConstructionPhase	PhaseEndDate	10/20/2016	9/15/2016
tblConstructionPhase	PhaseEndDate	2/17/2015	2/13/2015

tblConstructionPhase	PhaseStartDate	7/22/2016	8/15/2015
tblConstructionPhase	PhaseStartDate	2/14/2015	1/15/2015
tblConstructionPhase	PhaseStartDate	9/17/2016	8/15/2016
tblConstructionPhase	PhaseStartDate	12/17/2014	12/15/2014
tblGrading	AcresOfGrading	33.69	75.00
tblGrading	MaterialExported	0.00	5,000.00
tblLandUse	LandUseSquareFeet	465,000.00	901,870.00
tblLandUse	LotAcreage	7.11	0.00
tblLandUse	LotAcreage	12.24	12.04
tblLandUse	Population	1,330.00	1,158.00
tblOffRoadEquipment	HorsePower	78.00	30.00
tblOffRoadEquipment	HorsePower	226.00	208.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	89.00	149.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	125.00	89.00
tblOffRoadEquipment	HorsePower	130.00	82.00
tblOffRoadEquipment	HorsePower	80.00	84.00
tblOffRoadEquipment	HorsePower	255.00	358.00
tblOffRoadEquipment	HorsePower	255.00	358.00
tblOffRoadEquipment	HorsePower	255.00	358.00
tblOffRoadEquipment	HorsePower	361.00	356.00
tblOffRoadEquipment	HorsePower	97.00	75.00
tblOffRoadEquipment	HorsePower	97.00	75.00
tblOffRoadEquipment	HorsePower	97.00	75.00
tblOffRoadEquipment	HorsePower	62.00	75.00
tblOffRoadEquipment	HorsePower	78.00	30.00
tblOffRoadEquipment	HorsePower	85.00	230.00
tblOffRoadEquipment	HorsePower	162.00	30.00

tblOffRoadEquipment	HorsePower	171.00	30.00
tblOffRoadEquipment	HorsePower	84.00	130.00
tblOffRoadEquipment	HorsePower	84.00	40.00
tblOffRoadEquipment	HorsePower	64.00	45.00
tblOffRoadEquipment	HorsePower	64.00	45.00
tblOffRoadEquipment	HorsePower	64.00	45.00
tblOffRoadEquipment	HorsePower	80.00	70.00
tblOffRoadEquipment	LoadFactor	0.48	0.32
tblOffRoadEquipment	LoadFactor	0.73	0.49
tblOffRoadEquipment	LoadFactor	0.74	0.49
tblOffRoadEquipment	LoadFactor	0.45	0.30
tblOffRoadEquipment	LoadFactor	0.48	0.32
tblOffRoadEquipment	LoadFactor	0.38	0.32
tblOffRoadEquipment	LoadFactor	0.42	0.32
tblOffRoadEquipment	LoadFactor	0.74	0.31
tblOffRoadEquipment	LoadFactor	0.74	0.30
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblOffRoadEquipment	UsageHours	6.00	5.60
tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	7.00	3.00
tblOffRoadEquipment	UsageHours	8.00	5.30
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	4.90
tblOffRoadEquipment	UsageHours	8.00	2.50
tblOffRoadEquipment	UsageHours	8.00	2.50
tblOffRoadEquipment	UsageHours	8.00	2.50

tblOffRoadEquipment	UsageHours	8.00	5.30
tblOffRoadEquipment	UsageHours	8.00	4.90
tblOffRoadEquipment	UsageHours	8.00	5.10
tblOffRoadEquipment	UsageHours	8.00	4.90
tblOffRoadEquipment	UsageHours	7.00	4.50
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.10
tblOffRoadEquipment	UsageHours	8.00	0.70
tblProjectCharacteristics	OperationalYear	2014	2017
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripLength	20.00	0.35
tblTripsAndVMT	HaulingTripNumber	0.00	792.00
tblTripsAndVMT	HaulingTripNumber	625.00	312.00
tblTripsAndVMT	HaulingTripNumber	0.00	977.00
tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	VendorTripLength	7.30	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35
tblTripsAndVMT	WorkerTripLength	12.40	0.35

tblVehicleTrips	WD_TR	6.59	6.32

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.1912	2.0040	1.4775	1.5800e-003	0.3402	0.0981	0.4383	0.1692	0.0907	0.2599	0.0000	150.2064	150.2064	0.0401	0.0000	151.0491
2015	2.1046	5.1406	5.6313	5.2800e-003	0.2805	0.2919	0.5724	0.1483	0.2750	0.4234	0.0000	470.7670	470.7670	0.1113	0.0000	473.1051
2016	2.8038	2.7580	3.2582	3.2400e-003	0.0140	0.1653	0.1794	3.8500e-003	0.1568	0.1606	0.0000	281.0379	281.0379	0.0651	0.0000	282.4040
Total	**5.0996**	**9.9026**	**10.3671**	**0.0101**	**0.6347**	**0.5554**	**1.1901**	**0.3214**	**0.5225**	**0.8438**	**0.0000**	**902.0112**	**902.0112**	**0.2165**	**0.0000**	**906.5582**

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					
2014	0.0585	1.2670	1.0518	1.5800e-003	0.1533	0.0359	0.1892	0.0153	0.0359	0.0512	0.0000	150.2062	150.2062	0.0401	0.0000	151.0489
2015	1.6087	3.1030	5.2844	5.2800e-003	0.1380	0.0722	0.2102	0.0187	0.0719	0.0906	0.0000	470.7665	470.7665	0.1113	0.0000	473.1046
2016	2.4918	1.8771	3.1499	3.2400e-003	0.0140	0.0476	0.0616	3.8500e-003	0.0475	0.0513	0.0000	281.0376	281.0376	0.0651	0.0000	282.4037
Total	**4.1589**	**6.2472**	**9.4862**	**0.0101**	**0.3054**	**0.1556**	**0.4610**	**0.0379**	**0.1552**	**0.1931**	**0.0000**	**902.0102**	**902.0102**	**0.2165**	**0.0000**	**906.5572**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	18.45	36.91	8.50	0.00	51.89	71.97	61.26	88.21	70.29	77.11	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/15/2014	11/14/2014	5	45	
2	Grading	Grading	11/15/2014	12/16/2014	5	22	
3	Trenching/Site Prep	Site Preparation	12/15/2014	2/13/2015	5	45	
4	Building Exterior	Building Construction	1/15/2015	7/21/2016	5	396	
5	Building Interior/Architectural Coating	Architectural Coating	8/15/2015	9/16/2016	5	285	
6	Paving	Paving	8/15/2016	9/15/2016	5	24	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 1,826,287; Residential Outdoor: 608,762; Non-Residential Indoor: 474,000; Non-Residential Outdoor: 158,000

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	1.30	81	0.49
Demolition	Crushing/Proc. Equipment	1	3.30	230	0.78
Demolition	Excavators	3	5.30	157	0.38
Demolition	Rubber Tired Dozers	2	5.30	358	0.40
Demolition	Skid Steer Loaders	2	5.30	45	0.37
Demolition	Sweepers/Scrubbers	1	7.80	64	0.46
Grading	Excavators	2	6.00	157	0.38
Grading	Graders	1	4.90	162	0.41

Grading	Rubber Tired Dozers	1	4.90	358	0.40
Grading	Scrapers	2	4.90	356	0.48
Grading	Skid Steer Loaders	2	5.50	45	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	75	0.37
Trenching/Site Prep	Excavators	1	2.40	30	0.32
Trenching/Site Prep	Rubber Tired Dozers	3	5.10	358	0.40
Trenching/Site Prep	Tractors/Loaders/Backhoes	3	5.10	75	0.37
Trenching/Site Prep	Trenchers	1	2.70	70	0.50
Building Exterior	Aerial Lifts	3	3.80	75	0.31
Building Exterior	Air Compressors	6	3.80	30	0.32
Building Exterior	Cranes	1	3.00	208	0.29
Building Exterior	Forklifts	5	6.00	149	0.20
Building Exterior	Generator Sets	1	6.00	84	0.49
Building Exterior	Pumps	2	2.70	130	0.31
Building Exterior	Pumps	1	2.70	40	0.30
Building Exterior	Skid Steer Loaders	2	3.80	45	0.37
Building Exterior	Tractors/Loaders/Backhoes	3	4.50	75	0.37
Building Exterior	Welders	1	0.70	46	0.30
Building Interior/Architectural Coating	Air Compressors	5	5.60	30	0.32
Building Interior/Architectural Coating	Other Construction Equipment	2	5.60	30	0.32
Paving	Pavers	2	2.50	89	0.42
Paving	Paving Equipment	2	2.50	82	0.36
Paving	Rollers	2	2.50	84	0.38
Paving	Sweepers/Scrubbers	1	4.00	64	0.46

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	10	25.00	0.00	792.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	312.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT

Trenching/Site Prep	8	20.00	0.00	0.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT
Building Exterior	25	468.00	102.00	977.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT
Building Interior/Architectural	7	94.00	0.00	0.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	0.35	0.35	0.35	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2014

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	0.1007	1.0823	0.7396	9.0000e-004		0.0534	0.0534		0.0495	0.0495	0.0000	84.3084	84.3084	0.0212	0.0000	84.7529
Total	**0.1007**	**1.0823**	**0.7396**	**9.0000e-004**		**0.0534**	**0.0534**		**0.0495**	**0.0495**	**0.0000**	**84.3084**	**84.3084**	**0.0212**	**0.0000**	**84.7529**

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	5.5900e-003	0.0125	0.0755	1.0000e-005	1.3000e-004	1.0000e-004	2.2000e-004	4.0000e-005	9.0000e-005	1.2000e-004	0.0000	1.1311	1.1311	2.0000e-005	0.0000	1.1316
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	1.7400e-003	4.8000e-004	6.4000e-003	0.0000	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.2564	0.2564	3.0000e-005	0.0000	0.2570
Total	**7.3300e-003**	**0.0130**	**0.0819**	**1.0000e-005**	**2.8000e-004**	**1.1000e-004**	**3.8000e-004**	**8.0000e-005**	**1.0000e-004**	**1.7000e-004**	**0.0000**	**1.3875**	**1.3875**	**5.0000e-005**	**0.0000**	**1.3886**

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	0.0273	0.7103	0.5337	9.0000e-004		0.0204	0.0204		0.0204	0.0204	0.0000	84.3083	84.3083	0.0212	0.0000	84.7528
Total	**0.0273**	**0.7103**	**0.5337**	**9.0000e-004**		**0.0204**	**0.0204**		**0.0204**	**0.0204**	**0.0000**	**84.3083**	**84.3083**	**0.0212**	**0.0000**	**84.7528**

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	5.5900e-003	0.0125	0.0755	1.0000e-005	1.3000e-004	1.0000e-004	2.2000e-004	4.0000e-005	9.0000e-005	1.2000e-004	0.0000	1.1311	1.1311	2.0000e-005	0.0000	1.1316
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	1.7400e-003	4.8000e-004	6.4000e-003	0.0000	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.2564	0.2564	3.0000e-005	0.0000	0.2570

Total	**7.3300e-003**	**0.0130**	**0.0819**	**1.0000e-005**	**2.8000e-004**	**1.1000e-004**	**3.8000e-004**	**8.0000e-005**	**1.0000e-004**	**1.7000e-004**	**0.0000**	**1.3875**	**1.3875**	**5.0000e-005**	**0.0000**	**1.3886**

3.3 Grading - 2014

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					0.0806	0.0000	0.0806	0.0266	0.0000	0.0266	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0526	0.6050	0.3979	4.7000e-004		0.0292	0.0292		0.0269	0.0269	0.0000	45.2374	45.2374	0.0134	0.0000	45.5182
Total	**0.0526**	**0.6050**	**0.3979**	**4.7000e-004**	**0.0806**	**0.0292**	**0.1099**	**0.0266**	**0.0269**	**0.0535**	**0.0000**	**45.2374**	**45.2374**	**0.0134**	**0.0000**	**45.5182**

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	2.2000e-003	4.9400e-003	0.0297	1.0000e-005	5.0000e-005	4.0000e-005	9.0000e-005	1.0000e-005	4.0000e-005	5.0000e-005	0.0000	0.4456	0.4456	1.0000e-005	0.0000	0.4458
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	8.5000e-004	2.3000e-004	3.1300e-003	0.0000	7.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1253	0.1253	2.0000e-005	0.0000	0.1257
Total	**3.0500e-003**	**5.1700e-003**	**0.0329**	**1.0000e-005**	**1.2000e-004**	**4.0000e-005**	**1.7000e-004**	**3.0000e-005**	**4.0000e-005**	**7.0000e-005**	**0.0000**	**0.5709**	**0.5709**	**3.0000e-005**	**0.0000**	**0.5715**

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					0.0363	0.0000	0.0363	2.4000e-003	0.0000	2.4000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0149	0.3826	0.2914	4.7000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	45.2374	45.2374	0.0134	0.0000	45.5181
Total	**0.0149**	**0.3826**	**0.2914**	**4.7000e-004**	**0.0363**	**0.0111**	**0.0474**	**2.4000e-003**	**0.0111**	**0.0135**	**0.0000**	**45.2374**	**45.2374**	**0.0134**	**0.0000**	**45.5181**

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	2.2000e-003	4.9400e-003	0.0297	1.0000e-005	5.0000e-005	4.0000e-005	9.0000e-005	1.0000e-005	4.0000e-005	5.0000e-005	0.0000	0.4456	0.4456	1.0000e-005	0.0000	0.4458
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	8.5000e-004	2.3000e-004	3.1300e-003	0.0000	7.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1253	0.1253	2.0000e-005	0.0000	0.1257
Total	**3.0500e-003**	**5.1700e-003**	**0.0329**	**1.0000e-005**	**1.2000e-004**	**4.0000e-005**	**1.7000e-004**	**3.0000e-005**	**4.0000e-005**	**7.0000e-005**	**0.0000**	**0.5709**	**0.5709**	**3.0000e-005**	**0.0000**	**0.5715**

3.4 Trenching/Site Prep - 2014

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					0.2591	0.0000	0.2591	0.1424	0.0000	0.1424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0271	0.2984	0.2239	1.9000e-004		0.0154	0.0154		0.0141	0.0141	0.0000	18.6429	18.6429	5.5100e-003	0.0000	18.7586
Total	**0.0271**	**0.2984**	**0.2239**	**1.9000e-004**	**0.2591**	**0.0154**	**0.2745**	**0.1424**	**0.0141**	**0.1566**	**0.0000**	**18.6429**	**18.6429**	**5.5100e-003**	**0.0000**	**18.7586**

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	4.0000e-004	1.1000e-004	1.4800e-003	0.0000	3.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0593	0.0593	1.0000e-005	0.0000	0.0594
Total	**4.0000e-004**	**1.1000e-004**	**1.4800e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0593**	**0.0593**	**1.0000e-005**	**0.0000**	**0.0594**

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					0.1166	0.0000	0.1166	0.0128	0.0000	0.0128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5700e-003	0.1559	0.1105	1.9000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	18.6429	18.6429	5.5100e-003	0.0000	18.7586
Total	**5.5700e-003**	**0.1559**	**0.1105**	**1.9000e-004**	**0.1166**	**4.2800e-003**	**0.1209**	**0.0128**	**4.2800e-003**	**0.0171**	**0.0000**	**18.6429**	**18.6429**	**5.5100e-003**	**0.0000**	**18.7586**

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	4.0000e-004	1.1000e-004	1.4800e-003	0.0000	3.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0593	0.0593	1.0000e-005	0.0000	0.0594
Total	**4.0000e-004**	**1.1000e-004**	**1.4800e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0593**	**0.0593**	**1.0000e-005**	**0.0000**	**0.0594**

3.4 Trenching/Site Prep - 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					0.2591	0.0000	0.2591	0.1424	0.0000	0.1424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0666	0.7272	0.5463	4.8000e-004		0.0374	0.0374		0.0344	0.0344	0.0000	45.4054	45.4054	0.0136	0.0000	45.6900
Total	**0.0666**	**0.7272**	**0.5463**	**4.8000e-004**	**0.2591**	**0.0374**	**0.2965**	**0.1424**	**0.0344**	**0.1768**	**0.0000**	**45.4054**	**45.4054**	**0.0136**	**0.0000**	**45.6900**

Unmitigated Construction Off-Site

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	2.4000e-004	3.2600e-003	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1412	0.1412	2.0000e-005	0.0000	0.1415
Total	**9.1000e-004**	**2.4000e-004**	**3.2600e-003**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1412**	**0.1412**	**2.0000e-005**	**0.0000**	**0.1415**

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					0.1166	0.0000	0.1166	0.0128	0.0000	0.0128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0137	0.3836	0.2720	4.8000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	45.4053	45.4053	0.0136	0.0000	45.6900
Total	**0.0137**	**0.3836**	**0.2720**	**4.8000e-004**	**0.1166**	**0.0105**	**0.1272**	**0.0128**	**0.0105**	**0.0234**	**0.0000**	**45.4053**	**45.4053**	**0.0136**	**0.0000**	**45.6900**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	2.4000e-004	3.2600e-003	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1412	0.1412	2.0000e-005	0.0000	0.1415

Total	**9.1000e-004**	**2.4000e-004**	**3.2600e-003**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1412**	**0.1412**	**2.0000e-005**	**0.0000**	**0.1415**

3.5 Building Exterior - 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	0.4698	3.7976	2.6146	3.7800e-003		0.2321	0.2321		0.2190	0.2190	0.0000	342.3557	342.3557	0.0878	0.0000	344.1986
Total	**0.4698**	**3.7976**	**2.6146**	**3.7800e-003**		**0.2321**	**0.2321**		**0.2190**	**0.2190**	**0.0000**	**342.3557**	**342.3557**	**0.0878**	**0.0000**	**344.1986**

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	3.5800e-003	8.9900e-003	0.0535	1.0000e-005	1.4000e-004	6.0000e-005	1.9000e-004	4.0000e-005	5.0000e-005	9.0000e-005	0.0000	0.8691	0.8691	2.0000e-005	0.0000	0.8695
Vendor	0.1168	0.3404	1.5252	3.8000e-004	4.2600e-003	2.3300e-003	6.6000e-003	1.2500e-003	2.1300e-003	3.3800e-003	0.0000	32.8036	32.8036	5.5000e-004	0.0000	32.8150
Worker	0.1677	0.0442	0.5993	3.3000e-004	0.0157	6.0000e-004	0.0163	4.2400e-003	5.5000e-004	4.7900e-003	0.0000	25.9163	25.9163	2.9200e-003	0.0000	25.9777
Total	**0.2881**	**0.3936**	**2.1779**	**7.2000e-004**	**0.0201**	**2.9900e-003**	**0.0231**	**5.5300e-003**	**2.7300e-003**	**8.2600e-003**	**0.0000**	**59.5890**	**59.5890**	**3.4900e-003**	**0.0000**	**59.6622**

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	0.0901	2.1343	2.6154	3.7800e-003		0.0515	0.0515		0.0515	0.0515	0.0000	342.3553	342.3553	0.0878	0.0000	344.1982
Total	**0.0901**	**2.1343**	**2.6154**	**3.7800e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**342.3553**	**342.3553**	**0.0878**	**0.0000**	**344.1982**

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	3.5800e-003	8.9900e-003	0.0535	1.0000e-005	1.4000e-004	6.0000e-005	1.9000e-004	4.0000e-005	5.0000e-005	9.0000e-005	0.0000	0.8691	0.8691	2.0000e-005	0.0000	0.8695
Vendor	0.1168	0.3404	1.5252	3.8000e-004	4.2600e-003	2.3300e-003	6.6000e-003	1.2500e-003	2.1300e-003	3.3800e-003	0.0000	32.8036	32.8036	5.5000e-004	0.0000	32.8150
Worker	0.1677	0.0442	0.5993	3.3000e-004	0.0157	6.0000e-004	0.0163	4.2400e-003	5.5000e-004	4.7900e-003	0.0000	25.9163	25.9163	2.9200e-003	0.0000	25.9777
Total	**0.2881**	**0.3936**	**2.1779**	**7.2000e-004**	**0.0201**	**2.9900e-003**	**0.0231**	**5.5300e-003**	**2.7300e-003**	**8.2600e-003**	**0.0000**	**59.5890**	**59.5890**	**3.4900e-003**	**0.0000**	**59.6622**

3.5 Building Exterior - 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	0.2498	2.0483	1.4898	2.1900e-003		0.1226	0.1226		0.1156	0.1156	0.0000	196.3141	196.3141	0.0497	0.0000	197.3576
Total	**0.2498**	**2.0483**	**1.4898**	**2.1900e-003**		**0.1226**	**0.1226**		**0.1156**	**0.1156**	**0.0000**	**196.3141**	**196.3141**	**0.0497**	**0.0000**	**197.3576**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8900e-003	4.7700e-003	0.0298	1.0000e-005	1.3000e-004	2.0000e-005	1.5000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.4961	0.4961	1.0000e-005	0.0000	0.4963
Vendor	0.0614	0.1809	0.8401	2.2000e-004	2.4600e-003	1.0400e-003	3.5000e-003	7.2000e-004	9.5000e-004	1.6700e-003	0.0000	18.7460	18.7460	2.9000e-004	0.0000	18.7521
Worker	0.0895	0.0227	0.3108	1.9000e-004	9.0400e-003	3.4000e-004	9.3900e-003	2.4500e-003	3.1000e-004	2.7600e-003	0.0000	14.4677	14.4677	1.5000e-003	0.0000	14.4993
Total	**0.1528**	**0.2084**	**1.1808**	**4.2000e-004**	**0.0116**	**1.4000e-003**	**0.0130**	**3.2000e-003**	**1.2800e-003**	**4.4800e-003**	**0.0000**	**33.7098**	**33.7098**	**1.8000e-003**	**0.0000**	**33.7477**

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	0.0520	1.2330	1.5109	2.1900e-003		0.0298	0.0298		0.0298	0.0298	0.0000	196.3139	196.3139	0.0497	0.0000	197.3573
Total	**0.0520**	**1.2330**	**1.5109**	**2.1900e-003**		**0.0298**	**0.0298**		**0.0298**	**0.0298**	**0.0000**	**196.3139**	**196.3139**	**0.0497**	**0.0000**	**197.3573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8900e-003	4.7700e-003	0.0298	1.0000e-005	1.3000e-004	2.0000e-005	1.5000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.4961	0.4961	1.0000e-005	0.0000	0.4963
Vendor	0.0614	0.1809	0.8401	2.2000e-004	2.4600e-003	1.0400e-003	3.5000e-003	7.2000e-004	9.5000e-004	1.6700e-003	0.0000	18.7460	18.7460	2.9000e-004	0.0000	18.7521
Worker	0.0895	0.0227	0.3108	1.9000e-004	9.0400e-003	3.4000e-004	9.3900e-003	2.4500e-003	3.1000e-004	2.7600e-003	0.0000	14.4677	14.4677	1.5000e-003	0.0000	14.4993
Total	**0.1528**	**0.2084**	**1.1808**	**4.2000e-004**	**0.0116**	**1.4000e-003**	**0.0130**	**3.2000e-003**	**1.2800e-003**	**4.4800e-003**	**0.0000**	**33.7098**	**33.7098**	**1.8000e-003**	**0.0000**	**33.7477**

3.6 Building Interior/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	1.1958					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0702	0.2185	0.2417	2.7000e-004		0.0194	0.0194		0.0189	0.0189	0.0000	21.2226	21.2226	6.2900e-003	0.0000	21.3547
Total	**1.2659**	**0.2185**	**0.2417**	**2.7000e-004**		**0.0194**	**0.0194**		**0.0189**	**0.0189**	**0.0000**	**21.2226**	**21.2226**	**6.2900e-003**	**0.0000**	**21.3547**

Unmitigated Construction Off-Site

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0133	3.5000e-003	0.0475	3.0000e-005	1.2400e-003	5.0000e-005	1.2900e-003	3.4000e-004	4.0000e-005	3.8000e-004	0.0000	2.0531	2.0531	2.3000e-004	0.0000	2.0580
Total	**0.0133**	**3.5000e-003**	**0.0475**	**3.0000e-005**	**1.2400e-003**	**5.0000e-005**	**1.2900e-003**	**3.4000e-004**	**4.0000e-005**	**3.8000e-004**	**0.0000**	**2.0531**	**2.0531**	**2.3000e-004**	**0.0000**	**2.0580**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1958					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9200e-003	0.1878	0.1684	2.7000e-004		7.0400e-003	7.0400e-003		7.0400e-003	7.0400e-003	0.0000	21.2226	21.2226	6.2900e-003	0.0000	21.3547
Total	**1.2027**	**0.1878**	**0.1684**	**2.7000e-004**		**7.0400e-003**	**7.0400e-003**		**7.0400e-003**	**7.0400e-003**	**0.0000**	**21.2226**	**21.2226**	**6.2900e-003**	**0.0000**	**21.3547**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0133	3.5000e-003	0.0475	3.0000e-005	1.2400e-003	5.0000e-005	1.2900e-003	3.4000e-004	4.0000e-005	3.8000e-004	0.0000	2.0531	2.0531	2.3000e-004	0.0000	2.0580

Total	**0.0133**	**3.5000e-003**	**0.0475**	**3.0000e-005**	**1.2400e-003**	**5.0000e-005**	**1.2900e-003**	**3.4000e-004**	**4.0000e-005**	**3.8000e-004**	**0.0000**	**2.0531**	**2.0531**	**2.3000e-004**	**0.0000**	**2.0580**

3.6 Building Interior/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	2.2466					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1203	0.3991	0.4436	5.1000e-004		0.0337	0.0337		0.0329	0.0329	0.0000	39.7520	39.7520	0.0109	0.0000	39.9813
Total	**2.3669**	**0.3991**	**0.4436**	**5.1000e-004**		**0.0337**	**0.0337**		**0.0329**	**0.0329**	**0.0000**	**39.7520**	**39.7520**	**0.0109**	**0.0000**	**39.9813**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0231	5.8600e-003	0.0801	5.0000e-005	2.3300e-003	9.0000e-005	2.4200e-003	6.3000e-004	8.0000e-005	7.1000e-004	0.0000	3.7276	3.7276	3.9000e-004	0.0000	3.7357
Total	**0.0231**	**5.8600e-003**	**0.0801**	**5.0000e-005**	**2.3300e-003**	**9.0000e-005**	**2.4200e-003**	**6.3000e-004**	**8.0000e-005**	**7.1000e-004**	**0.0000**	**3.7276**	**3.7276**	**3.9000e-004**	**0.0000**	**3.7357**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.2466					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0130	0.3528	0.3163	5.1000e-004		0.0132	0.0132		0.0132	0.0132	0.0000	39.7519	39.7519	0.0109	0.0000	39.9812
Total	**2.2596**	**0.3528**	**0.3163**	**5.1000e-004**		**0.0132**	**0.0132**		**0.0132**	**0.0132**	**0.0000**	**39.7519**	**39.7519**	**0.0109**	**0.0000**	**39.9812**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0231	5.8600e-003	0.0801	5.0000e-005	2.3300e-003	9.0000e-005	2.4200e-003	6.3000e-004	8.0000e-005	7.1000e-004	0.0000	3.7276	3.7276	3.9000e-004	0.0000	3.7357
Total	**0.0231**	**5.8600e-003**	**0.0801**	**5.0000e-005**	**2.3300e-003**	**9.0000e-005**	**2.4200e-003**	**6.3000e-004**	**8.0000e-005**	**7.1000e-004**	**0.0000**	**3.7276**	**3.7276**	**3.9000e-004**	**0.0000**	**3.7357**

3.7 Paving - 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	0.0107	0.0961	0.0620	8.0000e-005		7.5500e-003	7.5500e-003		6.9500e-003	6.9500e-003	0.0000	7.4423	7.4423	2.2400e-003	0.0000	7.4895
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0107**	**0.0961**	**0.0620**	**8.0000e-005**		**7.5500e-003**	**7.5500e-003**		**6.9500e-003**	**6.9500e-003**	**0.0000**	**7.4423**	**7.4423**	**2.2400e-003**	**0.0000**	**7.4895**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	1.4000e-004	1.9800e-003	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0921	0.0921	1.0000e-005	0.0000	0.0923
Total	**5.7000e-004**	**1.4000e-004**	**1.9800e-003**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0921**	**0.0921**	**1.0000e-005**	**0.0000**	**0.0923**

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	3.7200e-003	0.0769	0.0599	8.0000e-005		3.1100e-003	3.1100e-003		3.1100e-003	3.1100e-003	0.0000	7.4423	7.4423	2.2400e-003	0.0000	7.4895
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.7200e-003**	**0.0769**	**0.0599**	**8.0000e-005**		**3.1100e-003**	**3.1100e-003**		**3.1100e-003**	**3.1100e-003**	**0.0000**	**7.4423**	**7.4423**	**2.2400e-003**	**0.0000**	**7.4895**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	1.4000e-004	1.9800e-003	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0921	0.0921	1.0000e-005	0.0000	0.0923
Total	**5.7000e-004**	**1.4000e-004**	**1.9800e-003**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0921**	**0.0921**	**1.0000e-005**	**0.0000**	**0.0923**

Sares Regis Site Sunnyvale - 2018: Full Buildout (Operation Only)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	419.00	Space	0.00	162,000.00	0
Apartments Mid Rise	259.00	Dwelling Unit	4.04	350,000.00	645

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	327.74	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor (327.74 lb/MWh) for 2018 obtained from CPUC GHG Calculator version 3c

Land Use - Based on applicant project description

Vehicle Trips - Based on traffic report, weekend rate not adjusted

Woodstoves - Assumed no wood burning

Energy Use - No change.

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	92.40	0.00
tblFireplaces	NumberGas	142.45	178.71
tblFireplaces	NumberWood	36.26	0.00

tblLandUse	LandUseSquareFeet	167,600.00	162,000.00
tblLandUse	LandUseSquareFeet	259,000.00	350,000.00
tblLandUse	LotAcreage	3.77	0.00
tblLandUse	LotAcreage	6.82	4.04
tblLandUse	Population	741.00	645.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	327.74
tblProjectCharacteristics	OperationalYear	2014	2018
tblVehicleTrips	WD_TR	6.59	6.54
tblWoodstoves	NumberCatalytic	1.29	0.00
tblWoodstoves	NumberNoncatalytic	1.29	0.00
tblWoodstoves	WoodstoveDayYear	10.82	0.00
tblWoodstoves	WoodstoveWoodMass	954.80	0.00

2.0 Emissions Summary

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	2.3914	0.0225	1.9407	1.0000e-004		0.0112	0.0112		0.0112	0.0112	0.0000	11.7404	11.7404	3.3000e-003	1.6000e-004	11.8585
Energy	0.0114	0.0970	0.0413	6.2000e-004		7.8400e-003	7.8400e-003		7.8400e-003	7.8400e-003	0.0000	316.0309	316.0309	0.0202	5.7900e-003	318.2491
Mobile	0.8844	1.8725	8.5999	0.0195	1.4080	0.0251	1.4331	0.3764	0.0232	0.3996	0.0000	1,447.9507	1,447.9507	0.0570	0.0000	1,449.1482
Waste						0.0000	0.0000		0.0000	0.0000	24.1843	0.0000	24.1843	1.4293	0.0000	54.1987
Water						0.0000	0.0000		0.0000	0.0000	5.3536	19.1095	24.4632	0.5516	0.0133	40.1793
Total	**3.2871**	**1.9920**	**10.5818**	**0.0202**	**1.4080**	**0.0442**	**1.4522**	**0.3764**	**0.0422**	**0.4186**	**29.5380**	**1,794.8316**	**1,824.3696**	**2.0613**	**0.0193**	**1,873.6337**

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	2.3914	0.0225	1.9407	1.0000e-004		0.0112	0.0112		0.0112	0.0112	0.0000	11.7404	11.7404	3.3000e-003	1.6000e-004	11.8585
Energy	0.0100	0.0856	0.0364	5.5000e-004		6.9200e-003	6.9200e-003		6.9200e-003	6.9200e-003	0.0000	288.0120	288.0120	0.0186	5.2800e-003	290.0383
Mobile	0.8844	1.8725	8.5999	0.0195	1.4080	0.0251	1.4331	0.3764	0.0232	0.3996	0.0000	1,447.9507	1,447.9507	0.0570	0.0000	1,449.1482
Waste						0.0000	0.0000		0.0000	0.0000	24.1843	0.0000	24.1843	1.4293	0.0000	54.1987
Water						0.0000	0.0000		0.0000	0.0000	5.3536	19.1095	24.4632	0.5515	0.0133	40.1707
Total	**3.2858**	**1.9805**	**10.5770**	**0.0202**	**1.4080**	**0.0432**	**1.4512**	**0.3764**	**0.0413**	**0.4177**	**29.5380**	**1,766.8126**	**1,796.3506**	**2.0597**	**0.0188**	**1,845.4143**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.04**	**0.57**	**0.05**	**0.35**	**0.00**	**2.08**	**0.06**	**0.00**	**2.18**	**0.22**	**0.00**	**1.56**	**1.54**	**0.08**	**2.75**	**1.51**

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	0.8844	1.8725	8.5999	0.0195	1.4080	0.0251	1.4331	0.3764	0.0232	0.3996	0.0000	1,447.9507	1,447.9507	0.0570	0.0000	1,449.1482

Unmitigated	0.8844	1.8725	8.5999	0.0195	1.4080	0.0251	1.4331	0.3764	0.0232	0.3996	0.0000	1,447.9507	1,447.9507	0.0570	0.0000	1,449.1482

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,693.86	1,854.44	1572.13	3,793,705	3,793,705
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	1,693.86	1,854.44	1,572.13	3,793,705	3,793,705

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Unenclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.551461	0.058468	0.185554	0.123211	0.029507	0.004440	0.012712	0.023230	0.001775	0.001270	0.006089	0.000516	0.001766

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

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

Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	188.9294	188.9294	0.0167	3.4600e-003	190.3526
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	203.6973	203.6973	0.0180	3.7300e-003	205.2318
NaturalGas Mitigated	0.0100	0.0856	0.0364	5.5000e-004		6.9200e-003	6.9200e-003		6.9200e-003	6.9200e-003	0.0000	99.0826	99.0826	1.9000e-003	1.8200e-003	99.6856
NaturalGas Unmitigated	0.0114	0.0970	0.0413	6.2000e-004		7.8400e-003	7.8400e-003		7.8400e-003	7.8400e-003	0.0000	112.3337	112.3337	2.1500e-003	2.0600e-003	113.0173

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					
Apartments Mid Rise	2.10505e+006	0.0114	0.0970	0.0413	6.2000e-004		7.8400e-003	7.8400e-003		7.8400e-003	7.8400e-003	0.0000	112.3337	112.3337	2.1500e-003	2.0600e-003	113.0173
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0114**	**0.0970**	**0.0413**	**6.2000e-004**		**7.8400e-003**	**7.8400e-003**		**7.8400e-003**	**7.8400e-003**	**0.0000**	**112.3337**	**112.3337**	**2.1500e-003**	**2.0600e-003**	**113.0173**

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					
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	1.85674e+006	0.0100	0.0856	0.0364	5.5000e-004		6.9200e-003	6.9200e-003		6.9200e-003	6.9200e-003	0.0000	99.0826	99.0826	1.9000e-003	1.8200e-003	99.6856

Total		**0.0100**	**0.0856**	**0.0364**	**5.5000e-004**		**6.9200e-003**	**6.9200e-003**		**6.9200e-003**	**6.9200e-003**	**0.0000**	**99.0826**	**99.0826**	**1.9000e-003**	**1.8200e-003**	**99.6856**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	913379	135.7833	0.0120	2.4900e-003	136.8062
Unenclosed Parking with Elevator	456840	67.9140	6.0100e-003	1.2400e-003	68.4256
Total		**203.6973**	**0.0180**	**3.7300e-003**	**205.2318**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	856645	127.3492	0.0113	2.3300e-003	128.3085
Unenclosed Parking with Elevator	414234	61.5802	5.4500e-003	1.1300e-003	62.0441
Total		**188.9294**	**0.0167**	**3.4600e-003**	**190.3526**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.3914	0.0225	1.9407	1.0000e-004		0.0112	0.0112		0.0112	0.0112	0.0000	11.7404	11.7404	3.3000e-003	1.6000e-004	11.8585
Unmitigated	2.3914	0.0225	1.9407	1.0000e-004		0.0112	0.0112		0.0112	0.0112	0.0000	11.7404	11.7404	3.3000e-003	1.6000e-004	11.8585

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	0.3309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9996					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	8.7000e-004	0.0000	5.0000e-005	0.0000		6.0000e-004	6.0000e-004		5.9000e-004	5.9000e-004	0.0000	8.5916	8.5916	1.6000e-004	1.6000e-004	8.6439
Landscaping	0.0601	0.0225	1.9406	1.0000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	3.1488	3.1488	3.1300e-003	0.0000	3.2147
Total	**2.3914**	**0.0225**	**1.9407**	**1.0000e-004**		**0.0112**	**0.0112**		**0.0112**	**0.0112**	**0.0000**	**11.7404**	**11.7404**	**3.2900e-003**	**1.6000e-004**	**11.8585**

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	0.3309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9996					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	8.7000e-004	0.0000	5.0000e-005	0.0000		6.0000e-004	6.0000e-004		5.9000e-004	5.9000e-004	0.0000	8.5916	8.5916	1.6000e-004	1.6000e-004	8.6439
Landscaping	0.0601	0.0225	1.9406	1.0000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	3.1488	3.1488	3.1300e-003	0.0000	3.2147
Total	**2.3914**	**0.0225**	**1.9407**	**1.0000e-004**		**0.0112**	**0.0112**		**0.0112**	**0.0112**	**0.0000**	**11.7404**	**11.7404**	**3.2900e-003**	**1.6000e-004**	**11.8585**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	24.4632	0.5515	0.0133	40.1707
Unmitigated	24.4632	0.5516	0.0133	40.1793

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	16.8749 / 10.6385	24.4632	0.5516	0.0133	40.1793

Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**24.4632**	**0.5516**	**0.0133**	**40.1793**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	16.8749 / 10.6385	24.4632	0.5515	0.0133	40.1707
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**24.4632**	**0.5515**	**0.0133**	**40.1707**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	24.1843	1.4293	0.0000	54.1987
Unmitigated	24.1843	1.4293	0.0000	54.1987

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	119.14	24.1843	1.4293	0.0000	54.1987
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**24.1843**	**1.4293**	**0.0000**	**54.1987**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	119.14	24.1843	1.4293	0.0000	54.1987
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**24.1843**	**1.4293**	**0.0000**	**54.1987**

9.0 Operational Offroad

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

10.0 Vegetation

Raintree Site, Sunnyvale - 2019: Full Buildout (Operation Only)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	1,165.00	Space	0.00	422,400.00	0
Apartments Mid Rise	679.00	Dwelling Unit	12.04	897,600.00	1691

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	306.68	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor (306.68 lb/MWh) for 2019 obtained from CPUC GHG Calculator version 3c.

Land Use - Lot acreage from Project Description. Square footage from Project Description. Anticipated population 1,691.

Vehicle Trips - Used weekday project traffic 6.24 trips/1 ksf/day, instead of 6.59. Did not change weekend rate

Woodstoves - No wood burning fireplaces

Energy Use - No change.

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	92.40	0.00
tblFireplaces	NumberGas	373.45	468.51

tblFireplaces	NumberWood	95.06	0.00
tblLandUse	LandUseSquareFeet	466,000.00	422,400.00
tblLandUse	LandUseSquareFeet	679,000.00	897,600.00
tblLandUse	LotAcreage	10.48	0.00
tblLandUse	LotAcreage	17.87	12.04
tblLandUse	Population	1,942.00	1,691.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	306.68
tblProjectCharacteristics	OperationalYear	2014	2019
tblVehicleTrips	WD_TR	6.59	6.24
tblWoodstoves	NumberCatalytic	3.40	0.00
tblWoodstoves	NumberNoncatalytic	3.40	0.00
tblWoodstoves	WoodstoveDayYear	10.82	0.00
tblWoodstoves	WoodstoveWoodMass	954.80	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.1658	0.0588	5.0776	2.7000e-004		0.0294	0.0294		0.0294	0.0294	0.0000	30.7801	30.7801	8.5700e-003	4.1000e-004	31.0881
Energy	0.0298	0.2543	0.1082	1.6200e-003		0.0206	0.0206		0.0206	0.0206	0.0000	1,012.4666	1,012.4666	0.0735	0.0195	1,020.0391
Mobile	2.0912	4.4003	20.2152	0.0495	3.5707	0.0619	3.6325	0.9546	0.0571	1.0117	0.0000	3,559.4800	3,559.4800	0.1348	0.0000	3,562.3105
Waste						0.0000	0.0000		0.0000	0.0000	63.4022	0.0000	63.4022	3.7470	0.0000	142.0884
Water						0.0000	0.0000		0.0000	0.0000	14.0352	46.8787	60.9139	1.4460	0.0350	102.1156

Total	**8.2867**	**4.7134**	**25.4009**	**0.0514**	**3.5707**	**0.1118**	**3.6825**	**0.9546**	**0.1070**	**1.0616**	**77.4374**	**4,649.6055**	**4,727.0429**	**5.4098**	**0.0548**	**4,857.6418**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.1658	0.0588	5.0776	2.7000e-004		0.0294	0.0294		0.0294	0.0294	0.0000	30.7801	30.7801	8.5700e-003	4.1000e-004	31.0881
Energy	0.0263	0.2243	0.0954	1.4300e-003		0.0181	0.0181		0.0181	0.0181	0.0000	907.0332	907.0332	0.0662	0.0174	913.8251
Mobile	2.0912	4.4003	20.2152	0.0495	3.5707	0.0619	3.6325	0.9546	0.0571	1.0117	0.0000	3,559.4800	3,559.4800	0.1348	0.0000	3,562.3105
Waste						0.0000	0.0000		0.0000	0.0000	63.4022	0.0000	63.4022	3.7470	0.0000	142.0884
Water						0.0000	0.0000		0.0000	0.0000	12.6317	39.6877	52.3194	1.3012	0.0314	89.3808
Total	**8.2832**	**4.6834**	**25.3882**	**0.0512**	**3.5707**	**0.1094**	**3.6800**	**0.9546**	**0.1045**	**1.0592**	**76.0339**	**4,536.9811**	**4,613.0150**	**5.2577**	**0.0493**	**4,738.6930**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.04**	**0.64**	**0.05**	**0.37**	**0.00**	**2.17**	**0.07**	**0.00**	**2.27**	**0.23**	**1.81**	**2.42**	**2.41**	**2.81**	**10.16**	**2.45**

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	2.0912	4.4003	20.2152	0.0495	3.5707	0.0619	3.6325	0.9546	0.0571	1.0117	0.0000	3,559.4800	3,559.4800	0.1348	0.0000	3,562.3105
Unmitigated	2.0912	4.4003	20.2152	0.0495	3.5707	0.0619	3.6325	0.9546	0.0571	1.0117	0.0000	3,559.4800	3,559.4800	0.1348	0.0000	3,562.3105

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	4,236.96	4,861.64	4121.53	9,620,850	9,620,850
Enclosed Parking Structure	0.00	0.00	0.00		
Total	4,236.96	4,861.64	4,121.53	9,620,850	9,620,850

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.551713	0.058594	0.185355	0.122900	0.029437	0.004435	0.012658	0.023465	0.001774	0.001269	0.006123	0.000509	0.001766

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	647.2761	647.2761	0.0612	0.0127	652.4871
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	717.9703	717.9703	0.0679	0.0141	723.7504
NaturalGas Mitigated	0.0263	0.2243	0.0954	1.4300e-003		0.0181	0.0181		0.0181	0.0181	0.0000	259.7572	259.7572	4.9800e-003	4.7600e-003	261.3380
NaturalGas Unmitigated	0.0298	0.2543	0.1082	1.6200e-003		0.0206	0.0206		0.0206	0.0206	0.0000	294.4964	294.4964	5.6400e-003	5.4000e-003	296.2887

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					
Apartments Mid Rise	5.51865e+006	0.0298	0.2543	0.1082	1.6200e-003		0.0206	0.0206		0.0206	0.0206	0.0000	294.4964	294.4964	5.6400e-003	5.4000e-003	296.2887
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0298**	**0.2543**	**0.1082**	**1.6200e-003**		**0.0206**	**0.0206**		**0.0206**	**0.0206**	**0.0000**	**294.4964**	**294.4964**	**5.6400e-003**	**5.4000e-003**	**296.2887**

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					
Apartments Mid Rise	4.86767e+006	0.0263	0.2243	0.0954	1.4300e-003		0.0181	0.0181		0.0181	0.0181	0.0000	259.7572	259.7572	4.9800e-003	4.7600e-003	261.3380
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0263**	**0.2243**	**0.0954**	**1.4300e-003**		**0.0181**	**0.0181**		**0.0181**	**0.0181**	**0.0000**	**259.7572**	**259.7572**	**4.9800e-003**	**4.7600e-003**	**261.3380**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.39453e+006	333.0982	0.0315	6.5200e-003	335.7799
Enclosed Parking Structure	2.76672e+006	384.8721	0.0364	7.5300e-003	387.9706
Total		**717.9703**	**0.0679**	**0.0141**	**723.7504**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.2458e+006	312.4080	0.0295	6.1100e-003	314.9231
Enclosed Parking Structure	2.40726e+006	334.8681	0.0317	6.5500e-003	337.5640
Total		**647.2761**	**0.0612**	**0.0127**	**652.4871**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.1658	0.0588	5.0776	2.7000e-004		0.0294	0.0294		0.0294	0.0294	0.0000	30.7801	30.7801	8.5700e-003	4.1000e-004	31.0881
Unmitigated	6.1658	0.0588	5.0776	2.7000e-004		0.0294	0.0294		0.0294	0.0294	0.0000	30.7801	30.7801	8.5700e-003	4.1000e-004	31.0881

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	0.8521					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.1553					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.2800e-003	0.0000	1.2000e-004	0.0000		1.5700e-003	1.5700e-003		1.5600e-003	1.5600e-003	0.0000	22.5238	22.5238	4.3000e-004	4.1000e-004	22.6609
Landscaping	0.1561	0.0588	5.0774	2.7000e-004		0.0278	0.0278		0.0278	0.0278	0.0000	8.2563	8.2563	8.1400e-003	0.0000	8.4272
Total	**6.1658**	**0.0588**	**5.0776**	**2.7000e-004**		**0.0294**	**0.0294**		**0.0294**	**0.0294**	**0.0000**	**30.7801**	**30.7801**	**8.5700e-003**	**4.1000e-004**	**31.0881**

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	0.8521					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.1553					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.2800e-003	0.0000	1.2000e-004	0.0000		1.5700e-003	1.5700e-003		1.5600e-003	1.5600e-003	0.0000	22.5238	22.5238	4.3000e-004	4.1000e-004	22.6609
Landscaping	0.1561	0.0588	5.0774	2.7000e-004		0.0278	0.0278		0.0278	0.0278	0.0000	8.2563	8.2563	8.1400e-003	0.0000	8.4272
Total	**6.1658**	**0.0588**	**5.0776**	**2.7000e-004**		**0.0294**	**0.0294**		**0.0294**	**0.0294**	**0.0000**	**30.7801**	**30.7801**	**8.5700e-003**	**4.1000e-004**	**31.0881**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	52.3194	1.3012	0.0314	89.3808
Unmitigated	60.9139	1.4460	0.0350	102.1156

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	44.2396 / 27.8902	60.9139	1.4460	0.0350	102.1156
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**60.9139**	**1.4460**	**0.0350**	**102.1156**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	39.8156 / 25.1012	52.3194	1.3012	0.0314	89.3808
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**52.3194**	**1.3012**	**0.0314**	**89.3808**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	63.4022	3.7470	0.0000	142.0884
Unmitigated	63.4022	3.7470	0.0000	142.0884

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	312.34	63.4022	3.7470	0.0000	142.0884
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		**63.4022**	**3.7470**	**0.0000**	**142.0884**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	312.34	63.4022	3.7470	0.0000	142.0884
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		**63.4022**	**3.7470**	**0.0000**	**142.0884**

9.0 Operational Offroad

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

10.0 Vegetation

Operational Community Health Risk Modeling

Highway 101 - 2016 Hourly DPM Emissions and Diesel Vehicle Traffic Volumes

2016 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - EB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.46%	57	0.1029	9	6.19%	101	0.0990	17	6.07%	99	0.0931
2	2.08%	34	0.0870	10	7.07%	116	0.1016	18	3.83%	63	0.0719
3	2.21%	36	0.0784	11	6.24%	102	0.1002	19	2.47%	40	0.0784
4	3.26%	53	0.1126	12	6.72%	110	0.1010	20	1.32%	22	0.0658
5	1.95%	32	0.1021	13	6.12%	100	0.1017	21	3.28%	54	0.0905
6	3.28%	54	0.1154	14	6.02%	99	0.1004	22	4.26%	70	0.0986
7	6.31%	103	0.1068	15	5.20%	85	0.1003	23	2.64%	43	0.0847
8	5.37%	88	0.0914	16	3.92%	64	0.0945	24	0.75%	12	0.1012
								Total		1,637	

2016 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - WB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.46%	57	0.1029	9	6.19%	101	0.0812	17	6.07%	99	0.0931
2	2.08%	34	0.0870	10	7.07%	116	0.1016	18	3.83%	63	0.0719
3	2.21%	36	0.0784	11	6.24%	102	0.1002	19	2.47%	40	0.0784
4	3.26%	53	0.1126	12	6.72%	110	0.1010	20	1.32%	22	0.0658
5	1.95%	32	0.1021	13	6.12%	100	0.1017	21	3.28%	54	0.0905
6	3.28%	54	0.1154	14	6.02%	99	0.1004	22	4.26%	70	0.0986
7	6.31%	103	0.1068	15	5.20%	85	0.1003	23	2.64%	43	0.0847
8	5.37%	88	0.0761	16	3.92%	64	0.0945	24	0.75%	12	0.1012
								Total		1,637	

Highway 101 - 2020 Hourly DPM Emissions and Diesel Vehicle Traffic Volumes

2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - EB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.47%	59	0.0714	9	6.64%	113	0.0651	17	5.86%	100	0.0660
2	2.05%	35	0.0601	10	6.54%	112	0.0752	18	3.54%	60	0.0513
3	2.19%	37	0.0545	11	6.63%	113	0.0659	19	2.88%	49	0.0496
4	3.21%	55	0.0778	12	7.14%	122	0.0667	20	1.67%	28	0.0374
5	1.95%	33	0.0710	13	6.47%	110	0.0670	21	2.70%	46	0.0726
6	3.22%	55	0.0797	14	6.43%	110	0.0662	22	3.80%	65	0.0758
7	5.75%	98	0.0793	15	5.53%	94	0.0654	23	2.07%	35	0.0710
8	5.18%	88	0.0644	16	4.34%	74	0.0610	24	0.73%	13	0.0695
								Total		1,706	

2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - WB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.47%	59	0.0714	9	6.64%	113	0.0585	17	5.86%	100	0.0660
2	2.05%	35	0.0601	10	6.54%	112	0.0752	18	3.54%	60	0.0513
3	2.19%	37	0.0545	11	6.63%	113	0.0659	19	2.88%	49	0.0496
4	3.21%	55	0.0778	12	7.14%	122	0.0667	20	1.67%	28	0.0374
5	1.95%	33	0.0710	13	6.47%	110	0.0670	21	2.70%	46	0.0726
6	3.22%	55	0.0797	14	6.43%	110	0.0662	22	3.80%	65	0.0758
7	5.75%	98	0.0793	15	5.53%	94	0.0654	23	2.07%	35	0.0710
8	5.18%	88	0.0576	16	4.34%	74	0.0610	24	0.73%	13	0.0695
								Total		1,706	

Highway 101 - 2025 Hourly DPM Emissions and Diesel Vehicle Traffic Volumes

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - EB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.44%	62	0.0614	9	6.49%	117	0.0569	17	5.83%	105	0.0577
2	2.07%	37	0.0514	10	7.05%	127	0.0615	18	3.37%	61	0.0449
3	2.14%	38	0.0461	11	6.09%	110	0.0607	19	2.72%	49	0.0428
4	3.07%	55	0.0669	12	7.00%	126	0.0581	20	1.11%	20	0.0411
5	1.89%	34	0.0611	13	6.49%	117	0.0584	21	3.10%	56	0.0553
6	3.19%	57	0.0687	14	6.39%	115	0.0577	22	4.13%	74	0.0599
7	6.04%	109	0.0645	15	5.47%	98	0.0574	23	2.61%	47	0.0528
8	4.95%	89	0.0564	16	4.19%	75	0.0532	24	1.15%	21	0.0404
								Total		1,797	

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - WB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.44%	62	0.0614	9	6.49%	117	0.0524	17	5.83%	105	0.0577
2	2.07%	37	0.0514	10	7.05%	127	0.0615	18	3.37%	61	0.0449
3	2.14%	38	0.0461	11	6.09%	110	0.0607	19	2.72%	49	0.0428
4	3.07%	55	0.0669	12	7.00%	126	0.0581	20	1.11%	20	0.0411
5	1.89%	34	0.0611	13	6.49%	117	0.0584	21	3.10%	56	0.0553
6	3.19%	57	0.0687	14	6.39%	115	0.0577	22	4.13%	74	0.0599
7	6.04%	109	0.0645	15	5.47%	98	0.0574	23	2.61%	47	0.0528
8	4.95%	89	0.0516	16	4.19%	75	0.0532	24	1.15%	21	0.0404
								Total		1,797	

Highway 101 - 2016 Hourly PM2.5 Emissions and Vehicle Traffic Volumes

2016 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - EB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.11%	894	0.0261	9	7.08%	5724	0.0218	17	7.38%	5965	0.0210
2	0.37%	302	0.0288	10	4.30%	3473	0.0238	18	8.26%	6676	0.0203
3	0.32%	256	0.0306	11	4.61%	3729	0.0225	19	5.78%	4672	0.0204
4	0.21%	170	0.0554	12	5.86%	4734	0.0224	20	4.34%	3511	0.0202
5	0.46%	374	0.0281	13	6.17%	4988	0.0216	21	3.28%	2653	0.0213
6	0.85%	684	0.0304	14	6.03%	4879	0.0218	22	3.31%	2677	0.0220
7	3.78%	3058	0.0231	15	7.07%	5715	0.0212	23	2.47%	1995	0.0212
8	7.88%	6371	0.0205	16	7.20%	5824	0.0207	24	1.89%	1526	0.0203
								Total		80,850	

2016 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - WB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.11%	894	0.0261	9	7.08%	5724	0.0220	17	7.38%	5965	0.0210
2	0.37%	302	0.0288	10	4.30%	3473	0.0238	18	8.26%	6676	0.0203
3	0.32%	256	0.0306	11	4.61%	3729	0.0225	19	5.78%	4672	0.0204
4	0.21%	170	0.0554	12	5.86%	4734	0.0224	20	4.34%	3511	0.0202
5	0.46%	374	0.0281	13	6.17%	4988	0.0216	21	3.28%	2653	0.0213
6	0.85%	684	0.0304	14	6.03%	4879	0.0218	22	3.31%	2677	0.0220
7	3.78%	3058	0.0231	15	7.07%	5715	0.0212	23	2.47%	1995	0.0212
8	7.88%	6371	0.0210	16	7.20%	5824	0.0207	24	1.89%	1526	0.0203
								Total		80,850	

Highway 101 - 2020 Hourly PM2.5 Emissions and Vehicle Traffic Volumes

2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - EB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	927	0.0244	9	7.08%	5944	0.0211	17	7.38%	6193	0.0204
2	0.37%	314	0.0265	10	4.30%	3606	0.0226	18	8.26%	6933	0.0199
3	0.31%	262	0.0275	11	4.61%	3871	0.0217	19	5.78%	4849	0.0201
4	0.21%	176	0.0457	12	5.86%	4916	0.0215	20	4.35%	3648	0.0199
5	0.46%	387	0.0258	13	6.17%	5180	0.0210	21	3.28%	2754	0.0207
6	0.84%	708	0.0274	14	6.03%	5063	0.0211	22	3.31%	2777	0.0212
7	3.78%	3176	0.0221	15	7.07%	5932	0.0206	23	2.47%	2071	0.0207
8	7.88%	6614	0.0201	16	7.20%	6046	0.0203	24	1.89%	1583	0.0200
								Total		83,930	

2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - WB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	927	0.0244	9	7.08%	5944	0.0215	17	7.38%	6193	0.0204
2	0.37%	314	0.0265	10	4.30%	3606	0.0226	18	8.26%	6933	0.0199
3	0.31%	262	0.0275	11	4.61%	3871	0.0217	19	5.78%	4849	0.0201
4	0.21%	176	0.0457	12	5.86%	4916	0.0215	20	4.35%	3648	0.0199
5	0.46%	387	0.0258	13	6.17%	5180	0.0210	21	3.28%	2754	0.0207
6	0.84%	708	0.0274	14	6.03%	5063	0.0211	22	3.31%	2777	0.0212
7	3.78%	3176	0.0221	15	7.07%	5932	0.0206	23	2.47%	2071	0.0207
8	7.88%	6614	0.0206	16	7.20%	6046	0.0203	24	1.89%	1583	0.0200
								Total		83,930	

Highway 101 - 2025 Hourly PM2.5 Emissions and Vehicle Traffic Volumes

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - EB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	969	0.0238	9	7.08%	6218	0.0209	17	7.38%	6480	0.0203
2	0.38%	330	0.0259	10	4.30%	3772	0.0224	18	8.26%	7251	0.0199
3	0.31%	276	0.0265	11	4.61%	4049	0.0215	19	5.77%	5068	0.0200
4	0.21%	182	0.0423	12	5.86%	5140	0.0214	20	4.35%	3815	0.0199
5	0.46%	404	0.0251	13	6.17%	5416	0.0209	21	3.28%	2879	0.0206
6	0.85%	742	0.0266	14	6.04%	5298	0.0210	22	3.31%	2905	0.0211
7	3.78%	3318	0.0218	15	7.07%	6204	0.0206	23	2.47%	2169	0.0207
8	7.88%	6916	0.0200	16	7.20%	6324	0.0203	24	1.89%	1655	0.0199
								Total		87,780	

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - WB-Hwy 101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	969	0.0238	9	7.08%	6218	0.0215	17	7.38%	6480	0.0203
2	0.38%	330	0.0259	10	4.30%	3772	0.0224	18	8.26%	7251	0.0199
3	0.31%	276	0.0265	11	4.61%	4049	0.0215	19	5.77%	5068	0.0200
4	0.21%	182	0.0423	12	5.86%	5140	0.0214	20	4.35%	3815	0.0199
5	0.46%	404	0.0251	13	6.17%	5416	0.0209	21	3.28%	2879	0.0206
6	0.85%	742	0.0266	14	6.04%	5298	0.0210	22	3.31%	2905	0.0211
7	3.78%	3318	0.0218	15	7.07%	6204	0.0206	23	2.47%	2169	0.0207
8	7.88%	6916	0.0206	16	7.20%	6324	0.0203	24	1.89%	1655	0.0199
								Total		87,780	

Off-Ramp to Fair Oaks - 2016 Hourly DPM Emissions and Diesel Vehicle Traffic Volumes

2016 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Fair Oaks Exit

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.46%	7	0.0698	9	6.19%	12	0.0674	17	6.07%	12	0.0639
2	2.08%	4	0.0612	10	7.07%	14	0.0688	18	3.83%	7	0.0520
3	2.21%	4	0.0565	11	6.24%	12	0.0680	19	2.47%	5	0.0557
4	3.26%	6	0.0751	12	6.72%	13	0.0685	20	1.32%	3	0.0481
5	1.95%	4	0.0694	13	6.12%	12	0.0689	21	3.28%	6	0.0625
6	3.28%	6	0.0766	14	6.02%	12	0.0681	22	4.26%	8	0.0670
7	6.31%	12	0.0716	15	5.20%	10	0.0681	23	2.64%	5	0.0592
8	5.37%	10	0.0629	16	3.92%	8	0.0648	24	0.75%	1	0.0689
								Total		195	

Off-Ramp to Fair Oaks - 2020 Hourly DPM Emissions and Diesel Vehicle Traffic Volumes

2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Fair Oaks Exit

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.47%	7	0.0566	9	6.64%	14	0.0516	17	5.86%	12	0.0522
2	2.05%	4	0.0489	10	6.54%	13	0.0590	18	3.54%	7	0.0417
3	2.19%	4	0.0452	11	6.63%	13	0.0520	19	2.88%	6	0.0401
4	3.21%	7	0.0608	12	7.14%	15	0.0527	20	1.67%	3	0.0306
5	1.95%	4	0.0563	13	6.47%	13	0.0528	21	2.70%	6	0.0573
6	3.22%	7	0.0621	14	6.43%	13	0.0523	22	3.80%	8	0.0595
7	5.75%	12	0.0619	15	5.53%	11	0.0516	23	2.07%	4	0.0562
8	5.18%	11	0.0510	16	4.34%	9	0.0483	24	0.73%	1	0.0552
								Total		203	

Off-Ramp to Fair Oaks - 2025 Hourly DPM Emissions and Diesel Vehicle Traffic Volumes

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Fair Oaks Exit

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.44%	7	0.0525	9	6.49%	14	0.0484	17	5.83%	12	0.0490
2	2.07%	4	0.0448	10	7.05%	15	0.0523	18	3.37%	7	0.0386
3	2.14%	5	0.0407	11	6.09%	13	0.0516	19	2.72%	6	0.0365
4	3.07%	7	0.0568	12	7.00%	15	0.0493	20	1.11%	2	0.0348
5	1.89%	4	0.0523	13	6.49%	14	0.0495	21	3.10%	7	0.0471
6	3.19%	7	0.0581	14	6.39%	14	0.0489	22	4.13%	9	0.0508
7	6.04%	13	0.0545	15	5.47%	12	0.0486	23	2.61%	6	0.0450
8	4.95%	11	0.0479	16	4.19%	9	0.0451	24	1.15%	2	0.0343
								Total		214	

Off-Ramp to Fair Oaks - 2016 Hourly PM2.5 Emissions and Diesel Vehicle Traffic Volumes

2016 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Fair Oaks Exit

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.11%	107	0.0242	9	7.08%	683	0.0211	17	7.38%	712	0.0205
2	0.37%	36	0.0263	10	4.30%	414	0.0225	18	8.26%	796	0.0200
3	0.32%	31	0.0276	11	4.61%	445	0.0215	19	5.78%	557	0.0199
4	0.21%	20	0.0465	12	5.86%	565	0.0214	20	4.34%	419	0.0198
5	0.46%	45	0.0258	13	6.17%	595	0.0209	21	3.28%	317	0.0206
6	0.85%	82	0.0275	14	6.03%	582	0.0210	22	3.31%	319	0.0211
7	3.78%	365	0.0220	15	7.07%	682	0.0205	23	2.47%	238	0.0206
8	7.88%	760	0.0201	16	7.20%	695	0.0202	24	1.89%	182	0.0198
								Total		9,646	

Off-Ramp to Fair Oaks - 2020 Hourly PM2.5 Emissions and Diesel Vehicle Traffic Volumes

2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Fair Oaks Exit

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	111	0.0235	9	7.08%	709	0.0207	17	7.38%	739	0.0202
2	0.37%	37	0.0254	10	4.30%	430	0.0219	18	8.26%	827	0.0198
3	0.31%	31	0.0262	11	4.61%	462	0.0211	19	5.78%	578	0.0197
4	0.21%	21	0.0421	12	5.86%	586	0.0210	20	4.35%	435	0.0196
5	0.46%	46	0.0247	13	6.17%	618	0.0205	21	3.28%	328	0.0202
6	0.84%	84	0.0261	14	6.03%	604	0.0206	22	3.31%	331	0.0208
7	3.78%	379	0.0215	15	7.07%	708	0.0202	23	2.47%	247	0.0202
8	7.88%	789	0.0199	16	7.20%	721	0.0199	24	1.89%	189	0.0196
								Total		10,010	

Off-Ramp to Fair Oaks - 2025 Hourly PM2.5 Emissions and Diesel Vehicle Traffic Volumes

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Fair Oaks Exit

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	116	0.0232	9	7.08%	741	0.0207	17	7.38%	772	0.0202
2	0.38%	39	0.0251	10	4.30%	450	0.0219	18	8.26%	864	0.0198
3	0.31%	33	0.0257	11	4.61%	483	0.0210	19	5.77%	604	0.0197
4	0.21%	22	0.0403	12	5.86%	613	0.0210	20	4.35%	455	0.0196
5	0.46%	48	0.0244	13	6.17%	646	0.0205	21	3.28%	343	0.0202
6	0.85%	88	0.0258	14	6.04%	632	0.0206	22	3.31%	346	0.0207
7	3.78%	396	0.0214	15	7.07%	740	0.0202	23	2.47%	259	0.0203
8	7.88%	825	0.0199	16	7.20%	754	0.0199	24	1.89%	197	0.0196
								Total		10,465	

On-Ramp to 101 From Fair Oaks - 2016 Hourly DPM Emissions and Diesel Vehicle Traffic Volumes

2016 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Hwy 101 Entrance

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.46%	5	0.0698	9	6.19%	9	0.0674	17	6.07%	9	0.0639
2	2.08%	3	0.0612	10	7.07%	10	0.0688	18	3.83%	6	0.0520
3	2.21%	3	0.0565	11	6.24%	9	0.0680	19	2.47%	4	0.0557
4	3.26%	5	0.0751	12	6.72%	10	0.0685	20	1.32%	2	0.0481
5	1.95%	3	0.0694	13	6.12%	9	0.0689	21	3.28%	5	0.0625
6	3.28%	5	0.0766	14	6.02%	9	0.0681	22	4.26%	6	0.0670
7	6.31%	9	0.0716	15	5.20%	7	0.0681	23	2.64%	4	0.0592
8	5.37%	8	0.0629	16	3.92%	6	0.0648	24	0.75%	1	0.0689
								Total		144	

On-Ramp to 101 From Fair Oaks - 2020 Hourly DPM Emissions and Diesel Vehicle Traffic Volumes

2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Hwy 101 Entrance

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.47%	5	0.0566	9	6.64%	10	0.0516	17	5.86%	9	0.0522
2	2.05%	3	0.0489	10	6.54%	10	0.0590	18	3.54%	5	0.0417
3	2.19%	3	0.0452	11	6.63%	10	0.0520	19	2.88%	4	0.0401
4	3.21%	5	0.0608	12	7.14%	11	0.0527	20	1.67%	3	0.0306
5	1.95%	3	0.0563	13	6.47%	10	0.0528	21	2.70%	4	0.0573
6	3.22%	5	0.0621	14	6.43%	10	0.0523	22	3.80%	6	0.0595
7	5.75%	9	0.0619	15	5.53%	8	0.0516	23	2.07%	3	0.0562
8	5.18%	8	0.0510	16	4.34%	7	0.0483	24	0.73%	1	0.0552
								Total		150	

On-Ramp to 101 From Fair Oaks - 2025 Hourly DPM Emissions and Diesel Vehicle Traffic Volumes

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Hwy 101 Entrance

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.44%	5	0.0525	9	6.49%	10	0.0484	17	5.83%	9	0.0490
2	2.07%	3	0.0448	10	7.05%	11	0.0523	18	3.37%	5	0.0386
3	2.14%	3	0.0407	11	6.09%	10	0.0516	19	2.72%	4	0.0365
4	3.07%	5	0.0568	12	7.00%	11	0.0493	20	1.11%	2	0.0348
5	1.89%	3	0.0523	13	6.49%	10	0.0495	21	3.10%	5	0.0471
6	3.19%	5	0.0581	14	6.39%	10	0.0489	22	4.13%	7	0.0508
7	6.04%	10	0.0545	15	5.47%	9	0.0486	23	2.61%	4	0.0450
8	4.95%	8	0.0479	16	4.19%	7	0.0451	24	1.15%	2	0.0343
								Total		158	

On-Ramp to 101 From Fair Oaks - 2016 Hourly PM2.5 Emissions and Diesel Vehicle Traffic Volumes

2016 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Hwy 101 Entrance

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.11%	79	0.0242	9	7.08%	503	0.0211	17	7.38%	524	0.0205
2	0.37%	26	0.0263	10	4.30%	305	0.0225	18	8.26%	586	0.0200
3	0.32%	22	0.0276	11	4.61%	328	0.0215	19	5.78%	410	0.0199
4	0.21%	15	0.0465	12	5.86%	416	0.0214	20	4.34%	308	0.0198
5	0.46%	33	0.0258	13	6.17%	438	0.0209	21	3.28%	233	0.0206
6	0.85%	60	0.0275	14	6.03%	429	0.0210	22	3.31%	235	0.0211
7	3.78%	269	0.0220	15	7.07%	502	0.0205	23	2.47%	175	0.0206
8	7.88%	560	0.0201	16	7.20%	512	0.0202	24	1.89%	134	0.0198
								Total		7,102	

On-Ramp to 101 From Fair Oaks - 2020 Hourly PM2.5 Emissions and Diesel Vehicle Traffic Volumes

2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Hwy 101 Entrance

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	81	0.0235	9	7.08%	522	0.0207	17	7.38%	544	0.0202
2	0.37%	28	0.0254	10	4.30%	317	0.0219	18	8.26%	609	0.0198
3	0.31%	23	0.0262	11	4.61%	340	0.0211	19	5.78%	426	0.0197
4	0.21%	15	0.0421	12	5.86%	432	0.0210	20	4.35%	320	0.0196
5	0.46%	34	0.0247	13	6.17%	455	0.0205	21	3.28%	242	0.0202
6	0.84%	62	0.0261	14	6.03%	445	0.0206	22	3.31%	244	0.0208
7	3.78%	279	0.0215	15	7.07%	521	0.0202	23	2.47%	182	0.0202
8	7.88%	581	0.0199	16	7.20%	531	0.0199	24	1.89%	139	0.0196
								Total		7,370	

On-Ramp to 101 From Fair Oaks - 2025 Hourly PM2.5 Emissions and Diesel Vehicle Traffic Volumes

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Hwy 101 Entrance

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	85	0.0232	9	7.08%	546	0.0207	17	7.38%	569	0.0202
2	0.38%	29	0.0251	10	4.30%	331	0.0219	18	8.26%	636	0.0198
3	0.31%	24	0.0257	11	4.61%	355	0.0210	19	5.77%	445	0.0197
4	0.21%	16	0.0403	12	5.86%	451	0.0210	20	4.35%	335	0.0196
5	0.46%	35	0.0244	13	6.17%	475	0.0205	21	3.28%	253	0.0202
6	0.85%	65	0.0258	14	6.04%	465	0.0206	22	3.31%	255	0.0207
7	3.78%	291	0.0214	15	7.07%	545	0.0202	23	2.47%	190	0.0203
8	7.88%	607	0.0199	16	7.20%	555	0.0199	24	1.89%	145	0.0196
								Total		7,705	

Highway 101 – 2016 Vehicle Emission Factor Calculations at 65, 60 mph and 30 mph

630 E Weddell Drive, Sunnyvale, CA

Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 64 mph

Analysis Year = ***2016***

Vehicle Type	2011 Caltrans Number Vehicles (veh/day)	2016 Number Vehicles (veh/day)	2016 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	103,844	109,036	0.33%	362	65	0.0193	0.0193	0.0015	0.0368	0.059
LDT	43,642	45,824	0.07%	32	65	0.0310	0.0197	0.0019	0.0589	0.128
MDT	3,685	3,869	6.47%	250	65	0.0236	0.0221	0.0031	0.0687	0.168
HDT	2,829	2,971	88.54%	2,630	60	0.1156	0.1416	0.0987	0.1489	0.650
Total	154,000	161,700	-	3,275	63.75	-	-		-	-
Mix Avg Emission Factor						**0.09712**	**0.02171**	**0.00347**	**0.04414**	**0.08294**
Increase From 2011		1.05								
Vehicles/Direction		80,850		1,637						
Avg Vehicles/Hour/Direction		**3,369**		**68**						

Traffic Data Year = ***2011***

Caltrans 2011 AADT Data		Total	Truck by Axle			
Caltrans 2010 Truck AADT Data	Total	Truck	2	3	4	5
SR 101 at Fair Oaks Ave, Sunnyvale	154,000	6,514	3,685	710	355	1,764
SR 101 B Lawrence Expressway			56.57%	10.90%	5.45%	27.08%
Percent of Total Vehicles		4.23%	2.39%	0.46%	0.23%	1.15%

Traffic Increase per Year (%) = ***1.00%***

Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 60 mph

Analysis Year = ***2016***

Vehicle Type	2011 Caltrans Number Vehicles (veh/day)	2016 Number Vehicles (veh/day)	2016 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	103,844	109,036	0.33%	362	60	0.0187	0.0191	0.0014	0.0326	0.059
LDT	43,642	45,824	0.07%	32	60	0.0306	0.0195	0.0017	0.0526	0.128
MDT	3,685	3,869	6.47%	250	60	0.0236	0.0221	0.0031	0.0687	0.168
HDT	2,829	2,971	88.54%	2,630	60	0.1156	0.1416	0.0987	0.1489	0.650
Total	154,000	161,700	-	3,275	60	-	-		-	-
Mix Avg Emission Factor						**0.09704**	**0.02154**	**0.00330**	**0.03942**	**0.08294**

Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 30 mph

Analysis Year = ***2016***

Vehicle Type	2011 Caltrans Number Vehicles (veh/day)	2016 Number Vehicles (veh/day)	2016 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	103,844	109,036	0.33%	362	30	0.0288	0.0197	0.0020	0.0442	0.059
LDT	43,642	45,824	0.07%	32	30	0.0494	0.0203	0.0025	0.0735	0.128
MDT	3,685	3,869	6.47%	250	30	0.0385	0.0224	0.0034	0.1073	0.168
HDT	2,829	2,971	88.54%	2,630	30	0.0913	0.1231	0.0801	0.6056	0.650
Total	154,000	161,700	-	3,275	30	-	-	-	-	-
Mix Avg Emission Factor						**0.07993**	**0.02183**	**0.00359**	**0.05534**	**0.08294**

Highway 101 – 2020 Vehicle Emission Factor Calculations at 65, 60 mph and 30 mph

Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 64 mph

Analysis Year = ***2020***

Vehicle Type	2011 Caltrans Number Vehicles (veh/day)	2020 Number Vehicles (veh/day)	2020 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	103,844	113,190	0.33%	376	65	0.0121	0.0192	0.0015	0.0202	0.044
LDT	43,642	47,570	0.07%	34	65	0.0188	0.0195	0.0017	0.0333	0.103
MDT	3,685	4,017	6.48%	260	65	0.0191	0.0217	0.0027	0.0498	0.161
HDT	2,829	3,084	88.92%	2,742	60	0.0797	0.1107	0.0682	0.0864	0.422
Total	154,000	167,860	-	3,412	63.75	-	-		-	-
Mix Avg Emission Factor						**0.06707**	**0.02102**	**0.00279**	**0.02478**	**0.06442**
Increase From 2011		1.09								
Vehicles/Direction		83,930		1,706						
Avg Vehicles/Hour/Direction		**3,497**		**71**						

Traffic Data Year = ***2011***

Caltrans 2011 AADT Data		Total	Truck by Axle			
Caltrans 2010 Truck AADT Data	Total	Truck	2	3	4	5
SR 101 at Fair Oaks Ave, Sunnyvale	154,000	6,514	3,685	710	355	1,764
SR 101 B Lawrence Expressway			56.57%	10.90%	5.45%	27.08%
Percent of Total Vehicles		4.23%	2.39%	0.46%	0.23%	1.15%

Traffic Increase per Year (%) = ***1.00%***

Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 60 mph

Analysis Year = ***2020***

Vehicle Type	2011 Caltrans Number Vehicles (veh/day)	2020 Number Vehicles (veh/day)	2020 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	103,844	113,190	0.33%	376	60	0.0111	0.0190	0.0013	0.0179	0.044
LDT	43,642	47,570	0.07%	34	60	0.0180	0.0193	0.0015	0.0298	0.103
MDT	3,685	4,017	6.48%	260	60	0.0191	0.0217	0.0027	0.0498	0.161
HDT	2,829	3,084	88.92%	2,742	60	0.0797	0.1107	0.0682	0.0864	0.422
Total	154,000	167,860	-	3,412	60	-	-		-	-
Mix Avg Emission Factor						**0.06696**	**0.02086**	**0.00262**	**0.02221**	**0.06442**

Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 30 mph

Analysis Year = ***2020***

Vehicle Type	2011 Caltrans Number Vehicles (veh/day)	2020 Number Vehicles (veh/day)	2020 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	103,844	113,190	0.33%	376	30	0.0152	0.0196	0.0019	0.0259	0.044
LDT	43,642	47,570	0.07%	34	30	0.0270	0.0200	0.0022	0.0440	0.103
MDT	3,685	4,017	6.48%	260	30	0.0311	0.0220	0.0030	0.0783	0.161
HDT	2,829	3,084	88.92%	2,742	30	0.0692	0.1035	0.0610	0.4439	0.422
Total	154,000	167,860	-	3,412	30	-	-	-	-	-
Mix Avg Emission Factor						**0.05996**	**0.02132**	**0.00309**	**0.03315**	**0.06442**

Highway 101 – 2025 Vehicle Emission Factor Calculations at 65, 60 mph and 30 mph

Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 64 mph

Analysis Year = ***2025***

Vehicle Type	2011 Caltrans Number Vehicles (veh/day)	2025 Number Vehicles (veh/day)	2025 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	103,939	118,491	0.33%	388	65	0.0080	0.0193	0.0016	0.0162	0.037
LDT	43,547	49,643	0.07%	35	65	0.0132	0.0194	0.0017	0.0245	0.086
MDT	3,685	4,201	6.54%	275	65	0.0149	0.0213	0.0023	0.0329	0.145
HDT	2,829	3,225	89.77%	2,895	60	0.0687	0.1016	0.0593	0.0402	0.257
Total	154,000	175,560	-	3,593	63.75	-	-		-	-
Mix Avg Emission Factor						**0.05746**	**0.02091**	**0.00268**	**0.01900**	**0.05394**
Increase From 2011		1.14								
Vehicles/Direction		87,780		1,797						
Avg Vehicles/Hour/Direction		**3,658**		**75**						

Traffic Data Year = ***2011***

Caltrans 2011 AADT Data		Total	Truck by Axle			
Caltrans 2010 Truck AADT Data	Total	Truck	2	3	4	5
SR 101 at Fair Oaks Ave, Sunnyvale	154,000	6,514	3,685	710	355	1,764
SR 101 B Lawrence Expressway			56.57%	10.90%	5.45%	27.08%
Percent of Total Vehicles		4.23%	2.39%	0.46%	0.23%	1.15%

Traffic Increase per Year (%) = ***1.00%***

Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 60 mph

Analysis Year = ***2025***

Vehicle Type	2011 Caltrans Number Vehicles (veh/day)	2025 Number Vehicles (veh/day)	2025 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	103,939	118,491	0.33%	388	60	0.0068	0.0191	0.0014	0.0143	0.037
LDT	43,547	49,643	0.07%	35	60	0.0121	0.0192	0.0015	0.0219	0.086
MDT	3,685	4,201	6.54%	275	60	0.0149	0.0213	0.0023	0.0329	0.145
HDT	2,829	3,225	89.77%	2,895	60	0.0687	0.1016	0.0593	0.0402	0.257
Total	154,000	175,560	-	3,593	60	-	-		-	-
Mix Avg Emission Factor						**0.05732**	**0.02073**	**0.00250**	**0.01698**	**0.05394**

Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 60 mph

Analysis Year = ***2025***

Vehicle Type	2011 Caltrans Number Vehicles (veh/day)	2025 Number Vehicles (veh/day)	2025 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	103,939	118,491	0.33%	388	60	0.0068	0.0191	0.0014	0.0143	0.037
LDT	43,547	49,643	0.07%	35	60	0.0121	0.0192	0.0015	0.0219	0.086
MDT	3,685	4,201	6.54%	275	60	0.0149	0.0213	0.0023	0.0329	0.145
HDT	2,829	3,225	89.77%	2,895	60	0.0687	0.1016	0.0593	0.0402	0.257
Total	154,000	175,560	-	3,593	60	-	-		-	-
Mix Avg Emission Factor						**0.05732**	**0.02073**	**0.00250**	**0.01698**	**0.05394**

Off-Ramp to Fair Oaks Ave – Vehicle Emission Factor Calculations at 45 mph

Raintree & Sares Regis, Sunnyvale, CA
Fair Oaks Exit From Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 45 mph

Analysis Year = ***2016***

Vehicle Type	2010 Caltrans Number Vehicles (veh/day)	2016 Number Vehicles (veh/day)	2016 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	6,136	6,504	0.33%	22	45	0.0205	0.0191	0.0013	0.0303	0.059
LDT	2,579	2,734	0.07%	2	45	0.0348	0.0194	0.0017	0.0501	0.128
MDT	218	231	6.47%	15	45	0.0267	0.0211	0.0021	0.0709	0.168
HDT	167	177	88.54%	157	45	0.0767	0.1120	0.0690	0.2250	0.650
Total	9,100	9,646	-	195	45	-	-		-	-
Mix Avg Emission Factor						**0.06628**	**0.02092**	**0.00267**	**0.03741**	**0.08294**
Increase From 2010		1.06								
Vehicles/Direction		4,823		98						
Avg Vehicles/Hour/Direction		**201**		**4**						

Traffic Data Year = ***2010***

Caltrans 2010 Ramp AADT Data		Total	Truck by Axle			
Caltrans 2010 Truck AADT Data	Total	Truck	2	3	4	5
WB SR 101 Off to Fair Oaks Ave	9,100	385	218	42	21	104
SR 101 B Lawrence Expressway			56.57%	10.90%	5.45%	27.08%
Percent of Total Vehicles		4.23%	2.39%	0.46%	0.23%	1.15%

Traffic Increase per Year (%) = ***1.00%***

Analysis Year = ***2020***

Vehicle Type	2010 Caltrans Number Vehicles (veh/day)	2020 Number Vehicles (veh/day)	2020 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	6,136	6,750	0.33%	22	45	0.0112	0.0190	0.0012	0.0171	0.044
LDT	2,579	2,837	0.07%	2	45	0.0194	0.0192	0.0015	0.0291	0.103
MDT	218	240	6.48%	16	45	0.0215	0.0209	0.0019	0.0517	0.161
HDT	167	184	88.92%	164	45	0.0621	0.0986	0.0561	0.1393	0.422
Total	9,100	10,010	-	203	45	-	-		-	-
Mix Avg Emission Factor						**0.05300**	**0.02056**	**0.00233**	**0.02161**	**0.06442**

Analysis Year = ***2025***

Vehicle Type	2010 Caltrans Number Vehicles (veh/day)	2025 Number Vehicles (veh/day)	2025 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	6,142	7,063	0.33%	23	45	0.0058	0.0191	0.0013	0.0137	0.037
LDT	2,573	2,959	0.07%	2	45	0.0120	0.0192	0.0014	0.0213	0.086
MDT	218	250	6.54%	16	45	0.0166	0.0207	0.0017	0.0346	0.145
HDT	167	192	89.77%	173	45	0.0581	0.0952	0.0529	0.0748	0.257
Total	9,100	10,465	-	214	45	-	-		-	-
Mix Avg Emission Factor						**0.04883**	**0.02054**	**0.00231**	**0.01651**	**0.05394**

On-Ramp to Hwy 101 From Fair Oaks Ave – Vehicle Emission Factor Calculations at 45 mph

Raintree & Sares Regis, Sunnyvale, CA

Fair Oaks Entrance to Highway 101 Traffic Traffic Data and PM2.5 & TOG Emission Factors - 45 mph

Analysis Year = ***2016***

Vehicle Type	2010 Caltrans Number Vehicles (veh/day)	2016 Number Vehicles (veh/day)	2016 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	4,518	4,789	0.33%	16	45	0.0205	0.0191	0.0013	0.0303	0.059
LDT	1,899	2,013	0.07%	1	45	0.0348	0.0194	0.0017	0.0501	0.128
MDT	160	170	6.47%	11	45	0.0267	0.0211	0.0021	0.0709	0.168
HDT	123	130	88.54%	116	45	0.0767	0.1120	0.0690	0.2250	0.650
Total	6,700	7,102	-	144	45	-	-		-	-
Mix Avg Emission Factor						**0.06628**	**0.02092**	**0.00267**	**0.03741**	**0.08294**
Increase From 2010		1.06								
Vehicles/Direction		3,551		72						
Avg Vehicles/Hour/Direction		**148**		**3**						

Traffic Data Year = ***2010***

Caltrans 2010 Ramp AADT Data		Total	Truck by Axle			
Caltrans 2010 Truck AADT Data	Total	Truck	2	3	4	5
WB SR 101 Off to Fair Oaks Ave	6,700	283	160	31	15	77
SR 101 B Lawrence Expressway			56.57%	10.90%	5.45%	27.08%
Percent of Total Vehicles		4.23%	2.39%	0.46%	0.23%	1.15%

Traffic Increase per Year (%) = ***1.00%***

Analysis Year = ***2020***

Vehicle Type	2010 Caltrans Number Vehicles (veh/day)	2020 Number Vehicles (veh/day)	2020 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	4,518	4,970	0.33%	16	45	0.0112	0.0190	0.0012	0.0171	0.044
LDT	1,899	2,089	0.07%	1	45	0.0194	0.0192	0.0015	0.0291	0.103
MDT	160	176	6.48%	11	45	0.0215	0.0209	0.0019	0.0517	0.161
HDT	123	135	88.92%	120	45	0.0621	0.0986	0.0561	0.1393	0.422
Total	6,700	7,370	-	150	45	-	-		-	-
Mix Avg Emission Factor						**0.05300**	**0.02056**	**0.00233**	**0.02161**	**0.06442**

Analysis Year = ***2025***

Vehicle Type	2010 Caltrans Number Vehicles (veh/day)	2025 Number Vehicles (veh/day)	2025 Percent Diesel	Number Diesel Vehicles (veh/day)	Vehicle Speed (mph)	Emission Factors: Diesel Vehicles DPM (g/VMT)	All Vehicles: Total PM2.5 (g/VMT)	All Vehicles: Exhaust PM2.5 (g/VMT)	Gas Vehicles: Exhaust TOG (g/VMT)	Gas Vehicles: Running TOG (g/VMT)
LDA	4,522	5,200	0.33%	17	45	0.0058	0.0191	0.0013	0.0137	0.037
LDT	1,895	2,179	0.07%	2	45	0.0120	0.0192	0.0014	0.0213	0.086
MDT	160	184	6.54%	12	45	0.0166	0.0207	0.0017	0.0346	0.145
HDT	123	142	89.77%	127	45	0.0581	0.0952	0.0529	0.0748	0.257
Total	6,700	7,705	-	158	45	-	-		-	-
Mix Avg Emission Factor						**0.04883**	**0.02054**	**0.00231**	**0.01651**	**0.05394**

Highway 101, Fair Oaks Off-Ramp & On-Ramp - Cancer Risk Calculations at Proposed Sares Regis Site

CAL3QHCR Risk Modeling Parameters and Maximum Cancer Risk in Project Area
Sares Regis Developmente - DPM & TOG TACs

Receptor Information

Number of Receptors	155
Receptor Height =	1.8 m
Receptor distances =	10 m

Meteorological Conditions

San Jose Airport Hourly Met Data	1991 - 1995
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

Cancer Risk Calculation Method

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Inhalation Dose Factors

Exposure Type	Value[1] DBR (L/kg BW-day)	A (-)	Exposure (hr/day)	Exposure (days/week)	Exposure (week/year)	EF (days/yr)	ED (Years)	AT (days)
Residential (70-Year)	302	1	24	7	50	350	70	25,550

[1] Default values recommended by OEHHA& Bay Area Air Quality Management District

Cancer Risk (per million) = Inhalation Dose x CRAF x CPF x 10^6
= URF x Cair

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
CRAF = Cancer Risk Adjustment Factor [adjustment factors are dependent on emissions period and duration of exposure]
URF =Unit risk factor (cancer risk per $\mu g/m^3$)

Unit Risk Factors (risk per million per $\mu g/m^3$) for DPM and Organic TACs from Vehicle TOG Exhaust & Evaporative Emissions

Exposure Type	CPF $(mg/kg\text{-}day)^{-1}$	CRAF (-)	*DPM*	Exhaust TOG TACs	Evaporative TOG TACs
Residential (70-Yr Exposure)	1.10E+00	1	318.5	1.8	0.107

MEI Cancer Risk Calculations - Receptor Height = 1.8 m

Meteorological Data Year	Maximum DPM Concentration ($\mu g/m^3$) 2016	2020	2025	Maximum Exhaust TOG Concentration $\mu g/m^3$) 2016	2020	2025	Maximum Evaporative TOG Concentration ($\mu g/m^3$) 2016	2020	2025	Maximum PM2.5 Concentration ($\mu g/m^3$) 2016	2020	2025
1991	0.0593	0.0430	0.0389	1.1190	0.6534	0.5202	2.0805	1.6717	1.4589	0.5432	0.5445	0.5655
1992	0.0628	0.0455	0.0412	1.1959	0.6985	0.5562	2.2235	1.7870	1.5597	0.5806	0.5821	0.6046
1993	0.0718	0.0520	0.0471	1.3656	0.7971	0.6345	2.5390	2.0392	1.7795	0.6629	0.6642	0.6897
1994	0.0699	0.0507	0.0458	1.3164	0.7687	0.6120	2.4474	1.9665	1.7162	0.6390	0.6406	0.6652
1995	0.0684	0.0496	0.0449	1.2876	0.7513	0.5981	2.3939	1.9221	1.6772	0.6250	0.6261	0.6501
Average	0.0664	0.0482	0.0436	1.2569	0.7338	0.5842	2.3369	1.8773	1.6383	0.610	0.611	0.635
Unadjusted Cancer Risk[a]	21.16	15.34	13.88	2.27	1.33	1.06	0.25	0.20	0.18			
Age Sensitivity Weighting Factor	0.396	0.214	1.079	0.396	0.214	1.079	0.396	0.214	1.079			
Contribution to Total Cancer Risk	8.39	3.29	14.97	0.90	0.3	1.1	0.10	0.0	0.2			
70-yr Cumulative Risk[b]	26.65			2.33			0.33			**Average PM2.5 =**		**0.62**

Total Risk From All TACs = 29.3 per million

Notes:
Receptor Heights = 1.8 m
Maximum DPM & PM2.5 concentrations occur at receptor closest to Highway 101
a Cancer risk (per million) calculated assuming constant 70-year exposure to concentration for year of analysis - without age sensitivity adjustments.
b Cumulative cancer risk (per million) calculated assuming variable exposure over a 70-year period due to decreased concentrations over time and incorporating age adjustment factors.

Highway 101, Fair Oaks Off-Ramp & On-Ramp - Cancer Risk Calculations at Proposed Raintree Site

CAL3QHCR Risk Modeling Parameters and Maximum Cancer Risk in Project Area
Raintree Development - DPM & TOG TACs

Receptor Information

Number of Receptors	514
Receptor Height =	1.8 m
Receptor distances =	10 m

Meteorological Conditions

San Jose Airport Hourly Met Data	1991 - 1995
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

Cancer Risk Calculation Method

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air (µg/m^3)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Inhalation Dose Factors

Exposure Type	Value[1] DBR (L/kg BW-day)	A (-)	Exposure (hr/day)	Exposure (days/week)	Exposure (week/year)	EF (days/yr)	ED (Years)	AT (days)
Residential (70-Year)	302	1	24	7	50	350	70	25,550

[1] Default values recommended by OEHHA& Bay Area Air Quality Management District

Cancer Risk (per million) = Inhalation Dose x CRAF x CPF x 10^6
= URF x Cair

Where: CPF = Cancer potency factor (mg/kg-day)$^{-1}$
CRAF = Cancer Risk Adjustment Factor [adjustment factors are dependent on emissions period and duration of exposure]
URF =Unit risk factor (cancer risk per µg/m^3)

Unit Risk Factors (risk per million per µg/m^3) for DPM and Organic TACs from Vehicle TOG Exhaust & Evaporative Emissions

Exposure Type	CPF (mg/kg-day)$^{-1}$	CRAF (-)	*DPM*	Exhaust TOG TACs	Evaporative TOG TACs
Residential (70-Yr Exposure)	1.10E+00	1	318.5	1.8	0.107

MEI Cancer Risk Calculations - Receptor Height = 1.8 m

Meteorological Data Year	Maximum DPM Concentration (µg/m^3) 2016	2020	2025	Maximum Exhaust TOG Concentration µg/m^3) 2016	2020	2025	Maximum Evaporative TOG Concentration (µg/m^3) 2016	2020	2025
1991	0.0709	0.0511	0.0461	1.3066	0.7616	0.6060	2.4293	1.9483	1.6995
1992	0.0755	0.0544	0.0491	1.4072	0.8204	0.6529	2.6163	2.0989	1.8311
1993	0.0861	0.0620	0.0559	1.6096	0.9385	0.7470	2.9926	2.4010	2.0947
1994	0.0840	0.0606	0.0546	1.5522	0.9048	0.7200	2.8859	2.3148	2.0193
1995	0.0822	0.0592	0.0534	1.5230	0.8879	0.7066	2.8317	2.2714	1.9815
Average	0.0797	0.0575	0.0518	1.4797	0.8626	0.6865	2.7512	2.2069	1.9252
Unadjusted Cancer Risk[a]	25.39	18.31	16.50	2.68	1.56	1.24	0.29	0.24	0.21
Age Sensitivity Weighting Factor	0.396	0.214	1.079	0.396	0.214	1.079	0.396	0.214	1.079
Contribution to Total Cancer Risk	10.07	3.9	17.8	1.06	0.3	1.3	0.12	0.1	0.2
70-yr Cumulative Risk[b]	31.79			2.74			0.39		

Maximum PM2.5 Concentration (µg/m^3) 2016	2020	2025
0.6343	0.6346	0.6587
0.6831	0.6837	0.7097
0.7814	0.7821	0.8119
0.7535	0.7540	0.7827
0.7393	0.7399	0.7680
0.718	0.719	0.746
Average PM2.5 =		**0.73**

Total Risk From All TACs = 34.9 per million

Notes:
Receptor Heights = 1.8 m
Maximum DPM & PM2.5 concentrations occur at receptor closest to Highway 101
a Cancer risk (per million) calculated assuming constant 70-year exposure to concentration for year of analysis - without age sensitivity adjustments.
b Cumulative cancer risk (per million) calculated assuming variable exposure over a 70-year period due to decreased concentrations over time and incorporating age adjustment factors.

Age Sensitivity Weighting Factors for Emissions Modeling Periods

Calendar Year	Exposure Year	Age Sensitivity Factors 10	3	1	Adjustment Factor	Age Sensitivity Weighting Factor	
2016	1	1.0			0.143		
2017	2	1.0	0.00		0.143		
2018	3	0.25	0.75		0.068		
2019	4		1.0		0.043	**0.396**	2016 - 2019
2020	5		1.0		0.043		
2021	6		1.0		0.043		
2022	7		1.0		0.043		
2023	8		1.0		0.043		
2024	9		1.0		0.043	**0.214**	2020 - 2024
2025	10		1.0		0.043		
2026	11		1.0		0.043		
2027	12		1.0		0.043		
2028	13		1.0		0.043		
2029	14		1.0		0.043		
2030	15		1.0		0.043		
2031	16		1.0		0.043		
2032	17		0.25	0.75	0.021		
2033	18			1.0	0.014		
2034	19			1.0	0.014		
2035	20			1.0	0.014		
2036	21			1.0	0.014		
2037	22			1.0	0.014		
2038	23			1.0	0.014		
2039	24			1.0	0.014		
2040	25			1.0	0.014		
2041	26			1.0	0.014		
2042	27			1.0	0.014		
2043	28			1.0	0.014		
2044	29			1.0	0.014		
2045	30			1.0	0.014		
2046	31			1.0	0.014		
2047	32			1.0	0.014		
2048	33			1.0	0.014		
2049	34			1.0	0.014		
2050	35			1.0	0.014		
2051	36			1.0	0.014		
2052	37			1.0	0.014		
2053	38			1.0	0.014		
2054	39			1.0	0.014		
2055	40			1.0	0.014		
2056	41			1.0	0.014		
2057	42			1.0	0.014		
2058	43			1.0	0.014		
2059	44			1.0	0.014		
2060	45			1.0	0.014		
2061	46			1.0	0.014		
2062	47			1.0	0.014		
2063	48			1.0	0.014		
2064	49			1.0	0.014		
2065	50			1.0	0.014		
2066	51			1.0	0.014		
2067	52			1.0	0.014		
2068	53			1.0	0.014		
2069	54			1.0	0.014		
2070	55			1.0	0.014		
2071	56			1.0	0.014		
2072	57			1.0	0.014		
2073	58			1.0	0.014		
2074	59			1.0	0.014		
2075	60			1.0	0.014		
2076	61			1.0	0.014		
2077	62			1.0	0.014		
2078	63			1.0	0.014		
2079	64			1.0	0.014		
2080	65			1.0	0.014		
2081	66			1.0	0.014		
2082	67			1.0	0.014		
2083	68			1.0	0.014		
2084	69			1.0	0.014		
2085	70			1.0	0.014	**1.079**	2025 - 2085
Total					1.7	1.7	

Bay Area Air Quality Management District

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD. This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

For guidance on conducting a risk & hazard screening, including for roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Also see the District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requestor Contact Information	
Contact Name:	James A. Reyff
Affiliation:	Illingworth & Rodkin, Inc.
Phone:	707-766-7700x24
Email:	jreyff@illingworthrodkin.com
Date of Request	4/4/2013
Project Name:	Sares-Regis/Raintree
Address:	
City:	Sunnyvale
County:	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.):	Mixed Use
Project size (# of units, or building square feet):	
Comments:	

The District's Google Earth tool indicates that the source (Plant 8251) has a risk of 35.45 per million. When we Googled the address, we found the source to be 700 feet from our site. However, it does not appear to be a generator or gasoline station. So we need information to figure out how to adjust the risk based on the 700-ft distance separation.

For Air District assistance, the following steps must be completed:

1. Complete all the contact and project information requested in Table A. Incomplete forms will not be processed. Please include a project site map.
2. Download and install the free program Google Earth, http://www.google.com/earth/download/ge/, and then download the county specific Google Earth stationary source application files from the District's website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.
3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
4. Identify stationary sources near the project. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.
5. List the stationary source information in Table B Section 1 below.
6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.
7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.

Submit forms, maps, and questions to Alison Kirk at 415-749-5169, or akirk@baaqmd.gov .

Table B: Stationary Sources

Table B Section 1: Requestor fills out these columns based on Google Earth data							Table B Section 2: BAAQMD returns form with additional information in these columns as needed												
Distance from Receptor (feet)	**Plant # or Gas Dispensary #**	**Facility Name**	**Street Address**	**Screening Level Cancer Risk (1)**	**Screening Level Hazard Index (1)**	**Screening Level PM2.5 (1)**	**Permit #s (2)**	**Source #s (2)**	**Fuel Code (3)**	**Type of Source(s) (4)**	**HRSA Ap # (5)**	**HRSA Date (6)**	**HRSA Engineer (7)**	**HRSA Cancer Risk in a million**	**Age Sensitivity Factor (8)**	**HRSA Adjusted Cancer Risk**	**HRSA Chronic Health (9)**	**HRSA PM2.5 Risk**	**Status/Comments**
700	8251	Aixtron Inc	1139 KARLSTAD DRIVE	35.45	0.013	0.008	4340, 9939, 25596			1 Process & applications labs, 2 diesel engine								0	Use emissions calculator and diesel distance mulplier for diesel engine.
Note: source misplaced on map																		0	
																		0	
																		0	
																		0	
																		0	
																		0	
																		0	
																		0	

Footnotes:

1. These Cancer Risk, Hazard Index, and PM2.5 columns represent the values in the Google Earth Plant Information Table.

2. Each plant may have multiple permits and sources.
3. Fuel codes: 98 = diesel, 189 = Natural Gas.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
6. The date that the HRSA was completed.
7. Engineer who completed the HRSA. For District purposes only.
8. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
9. The HRSA "Chronic Health" number represents the Hazard Index.
10. Further information about common sources:
    a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
    b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index of 0.003 or less. To be conservative, requestor should assume the cancer risk is 1 in a million and the hazard index is 0.003 for these sources.
    c. BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010. Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
    d. Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year period, but instead should reflect the number of years perc use will continue after the project's residents or other sensitive receptors (such as students, patients, etc) take occupancy.
    e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
    f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
    g. This spray booth is considered to be insignificant.

Date last updated:
5/30/12

Aixtron Inc (P# 8251)

```
  S#  SOURCE NAME
MATERIAL          SOURCE CODE
  THROUGHPUT            DATE  POLLUTANT                CODE  LBS/DAY
--------------------------------------------------------------------------------
   1  Process and Applications Labs
                FA000000
                      Isopropyl alcohol          157  2.68E-02
                      Acetone                   455  5.42E-03
                FB000000
                      Hydrochloric acid mist pol  1500  1.13E-04
                      Other Acid Mists          1590  1.14E-05
                FE000000
                      ** Unknown Pollutant **     483  2.87E-02
                FG000000
                                                 0  0.00E+00
   2  Diesel IC Engine for Emergency power generation
                C22AG098
Benzene                41    2.46E-04
Formaldeh             124    2.04E-05
Organics (p           990    1.19E-02
Arsenic (all         1030    2.15E-07
Beryllium (          1040    1.26E-07
Cadmium              1070    5.36E-07
Chromium             1095    1.11E-08
Lead (all) p         1140    4.55E-07
Manganese            1160    7.14E-07
Nickel poll          1180    8.68E-06
Mercury (a           1190    1.52E-07
Diesel Engi          1350    1.24E-02
PAH's (non           1840    1.13E-06
Nitrous Oxi          2030    6.60E-05
Nitrogen O           2990    1.73E-01
Sulfur Diox          3990    8.04E-05
Carbon Mo            4990    3.77E-02
Carbon Dio           6960    8.25E+00
Methane (            6970    3.30E-04

 PLANT TOTAL:
 lbs/day  Pollutant

 2.87E-02   (483)
 5.42E-03  Acetone (455)
 2.15E-07  Arsenic (all) (1030)
 2.46E-04  Benzene (41)
 1.26E-07  Beryllium (all) pollutant (1040)
 5.36E-07  Cadmium (1070)
8.25E+00  Carbon Dioxide, non-biogenic CO2 (6960)
 3.77E-02  Carbon Monoxide (CO) pollutant (4990)
 1.11E-08  Chromium (hexavalent) (1095)
 1.24E-02  Diesel Engine Exhaust Particulate Matter (1350)
 2.04E-05  Formaldehyde (124)
 1.13E-04  Hydrochloric acid mist pollutant (1500)
 2.68E-02  Isopropyl alcohol (157)
 4.55E-07  Lead (all) pollutant (1140)
 7.14E-07  Manganese (1160)
 1.52E-07  Mercury (all) pollutant (1190)
 3.30E-04  Methane (CH4) (6970)
 8.68E-06  Nickel pollutant (1180)
 1.73E-01  Nitrogen Oxides (part not spec elsewhere) (2990)
 6.60E-05  Nitrous Oxide (N2O) (2030)
 1.19E-02  Organics (part not spec elsewhere) -- including Methane (990)
 1.14E-05  Other Acid Mists (1590)
 1.13E-06  PAH's (non-speciated) (1840)
 8.04E-05  Sulfur Dioxide (SO2) (3990)
```

Plant #: Plant# 8251 Aixtron Inc
Plant Name:
Number of Sources: 2

Pollutant Name	Emissions/lbs per day	Cancer Risk (in millions)
ACETALDEHYDE		0.00E+00
ACETAMIDE		0.00E+00
ACRYLAMIDE		0.00E+00
ACRYLONITRILE		0.00E+00
ALLYL CHLORIDE		0.00E+00
2-AMINOANTHRAQUINONE		0.00E+00
ANILINE		0.00E+00
ARSENIC AND COMPOUNDS (INORGANIC)[1,2]	2.15E-07	1.09E-08
ASBESTOS[3]		0.00E+00
BENZENE[1]	2.46E-04	2.37E-08
BENZIDINE (AND ITS SALTS) values also apply to:		0.00E+00
Benzidine based dyes		0.00E+00
Direct Black 38		0.00E+00
Direct Blue 6		0.00E+00
Direct Brown 95 (technical grade)		0.00E+00
BENZYL CHLORIDE		0.00E+00
BERYLLIUM AND COMPOUNDS[2]	1.26E-07	9.78E-10
BIS(2-CHLOROETHYL)ETHER (Dichloroethyl ether)		0.00E+00
BIS(CHLOROMETHYL)ETHER		0.00E+00
POTASSIUM BROMATE		0.00E+00
1,3-BUTADIENE		0.00E+00
CADMIUM AND COMPOUNDS[2]	5.36E-07	7.43E-09
CARBON TETRACHLORIDE[1] (Tetrachloromethane)		0.00E+00
CHLORINATED PARAFFINS		0.00E+00
4-CHLORO-O-PHENYLENEDIAMINE		0.00E+00
CHLOROFORM[1]		0.00E+00
PENTACHLOROPHENOL		0.00E+00
2,4,6-TRICHLOROPHENOL		0.00E+00
p-CHLORO-o-TOLUIDINE		0.00E+00
CHROMIUM 6+2	1.11E-08	5.25E-09
Barium chromate2		0.00E+00
Calcium chromate2		0.00E+00
Lead chromate2		0.00E+00
Sodium dichromate2		0.00E+00
Strontium chromate2		0.00E+00
CHROMIC TRIOXIDE (as chromic acid mist)		0.00E+00
p-CRESIDINE		0.00E+00
CUPFERRON		0.00E+00
2,4-DIAMINOANISOLE		0.00E+00
2,4-DIAMINOTOLUENE		0.00E+00
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)		0.00E+00
1,4-DICHLOROBENZENE		0.00E+00
3,3-DICHLOROBENZIDINE		0.00E+00
1,1,-DICHLOROETHANE (Ethylidene dichloride)		0.00E+00
DI(2-ETHYLHEXYL)PHTHALATE (DEHP)		0.00E+00
p-DIMETHYLAMINOAZOBENZENE		0.00E+00
2,4-DINITROTOLUENE		0.00E+00
1,4-DIOXANE (1,4-Diethylene dioxide)		0.00E+00
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0.00E+00
ETHYL BENZENE		0.00E+00
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0.00E+00
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0.00E+00
ETHYLENE OXIDE (1,2-Epoxyethane)		0.00E+00
ETHYLENE THIOUREA		0.00E+00
FORMALDEHYDE	2.04E-05	4.13E-10
HEXACHLOROBENZENE		0.00E+00
HEXACHLOROCYCLOHEXANES (mixed or technical grade)		0.00E+00
alpha-HEXACHLOROCYCLOHEXANE		0.00E+00
beta- HEXACHLOROCYCLOHEXANE		0.00E+00
gamma-HEXACHLOROCYCLOHEXANE (Lindane)		0.00E+00
HYDRAZINE		0.00E+00
LEAD AND COMPOUNDS 2,4 (inorganic) values also apply to:	4.55E-07	5.21E-11
Lead acetate2		0.00E+00
Lead phosphate2		0.00E+00
Lead subacetate2		0.00E+00
METHYL tertiary-BUTYL ETHER		0.00E+00
4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA)		0.00E+00
METHYLENE CHLORIDE (Dichloromethane)		0.00E+00
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0.00E+00
MICHLER'S KETONE (4,4'-Bis(dimethylamino)benzophenone)		0.00E+00
N-NITROSODI-n-BUTYLAMINE		0.00E+00
N-NITROSODI-n-PROPYLAMINE		0.00E+00
N-NITROSODIETHYLAMINE		0.00E+00
N-NITROSODIMETHYLAMINE		0.00E+00
N-NITROSODIPHENYLAMINE		0.00E+00
N-NITROSO-N-METHYLETHYLAMINE		0.00E+00
N-NITROSOMORPHOLINE		0.00E+00
N-NITROSOPIPERIDINE		0.00E+00
N-NITROSOPYRROLIDINE		0.00E+00
NICKEL AND COMPOUNDS2 (values also apply to:)	8.68E-06	7.32E-09
Nickel acetate2		0.00E+00
Nickel carbonate2		0.00E+00
Nickel carbonyl2		0.00E+00
Nickel hydroxide2		0.00E+00
Nickelocene2		0.00E+00
NICKEL OXIDE2		0.00E+00
Nickel refinery dust from the pyrometallurgical process2		0.00E+00
Nickel subsulfide2		0.00E+00
p-NITROSODIPHENYLAMINE		0.00E+00
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	1.24E-02	1.32E-05
PERCHLOROETHYLENE (Tetrachloroethylene)		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [low risk] 2,6		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [high risk] 2,6		0.00E+00
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0.00E+00
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0.00E+00
POLYCYCLIC AROMATIC HYDROCARBON2 (PAH) (AS B(a)P-EQUIV)5	1.13E-06	5.96E-08
BENZO(A)PYRENE2,5		0.00E+00
NAPHTHALENE		0.00E+00
1,3-PROPANE SULTONE		0.00E+00
PROPYLENE OXIDE		0.00E+00
1,1,2,2-TETRACHLOROETHANE		0.00E+00
THIOACETAMIDE		0.00E+00
Toluene diisocyantates		0.00E+00
TOLUENE-2,4-DIISOCYANATE		0.00E+00
TOLUENE-2,6-DIISOCYANATE		0.00E+00
1,1,2-TRICHLOROETHANE (Vinyl trichloride)		0.00E+00
TRICHLOROETHYLENE		0.00E+00
URETHANE (Ethyl carbamate)		0.00E+00
VINYL CHLORIDE (Chloroethylene)		0.00E+00
	TOTAL:	1.33E-05

Plant #: Plant# 8251 Aixtron Inc
Plant Name:
Number of Sources: 2

Distance meters	Distance feet	Distance adjustment multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard
25	82	0.85		0
30	98	0.73		0
35	115	0.64		0
40	131	0.58		0
50	164	0.5		0
60	197	0.41		0
70	230	0.31		0
80	262	0.28		0
90	295	0.25		0
100	328	0.22		0
110	361	0.18		0
120	394	0.16		0
130	426	0.15		0
140	459	0.14		0
150	492	0.12		0
160	525	0.1		0
180	590	0.09		0
200	656	0.08	1.32798E-05	1.06238E-06
220	722	0.07	1.32798E-05	9.29584E-07
240	787	0.06		0
260	853	0.05		0
280	918	0.04		0

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Printed: MAY 7, 2013
DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2012)
Switch and Data CA Eleven LLC (P# 18976)

S# SOURCE NAME
MATERIAL SOURCE CODE
THROUGHPUT DATE POLLUTANT CODE LBS/DAY

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1 Emergency Standby Diesel Generator Set
C22BG098
Benzene 41 5.11E-04
Formaldehyde 124 4.23E-05
Organics (part not spec el 990 2.47E-02
Arsenic (all) 1030 4.45E-07
Beryllium (all) pollutant 1040 2.61E-07
Cadmium 1070 1.11E-06
Chromium (hexavalent) 1095 2.30E-08
Lead (all) pollutant 1140 9.44E-07
Manganese 1160 1.48E-06
Nickel pollutant 1180 1.80E-05
Mercury (all) pollutant 1190 3.15E-07
Diesel Engine Exhaust Part 1350 2.57E-02
PAH's (non-speciated) 1840 2.35E-06
Nitrous Oxide (N2O) 2030 1.37E-04
Nitrogen Oxides (part not 2990 3.60E-01
Sulfur Dioxide (SO2) 3990 1.67E-04
Carbon Monoxide (CO) pollu 4990 7.82E-02
Carbon Dioxide, non-biogen 6960 1.71E+01
Methane (CH4) 6970 6.84E-04

2 Emergency Standby Diesel Generator Set
C22BG098
Benzene 41 5.11E-04
Formaldehyde 124 4.23E-05
Organics (part not spec el 990 2.47E-02
Arsenic (all) 1030 4.45E-07
Beryllium (all) pollutant 1040 2.61E-07
Cadmium 1070 1.11E-06
Chromium (hexavalent) 1095 2.30E-08
Lead (all) pollutant 1140 9.44E-07
Manganese 1160 1.48E-06
Nickel pollutant 1180 1.80E-05
Mercury (all) pollutant 1190 3.15E-07
Diesel Engine Exhaust Part 1350 2.57E-02
PAH's (non-speciated) 1840 2.35E-06
Nitrous Oxide (N2O) 2030 1.37E-04
Nitrogen Oxides (part not 2990 3.60E-01
Sulfur Dioxide (SO2) 3990 1.67E-04
Carbon Monoxide (CO) pollu 4990 7.82E-02
Carbon Dioxide, non-biogen 6960 1.71E+01
Methane (CH4) 6970 6.84E-04

3 Emergency Standby Diesel Generator Set
C22BG098
Benzene 41 5.11E-04
Formaldehyde 124 4.23E-05
Organics (part not spec el 990 2.47E-02
Arsenic (all) 1030 4.45E-07
Beryllium (all) pollutant 1040 2.61E-07
Cadmium 1070 1.11E-06
Chromium (hexavalent) 1095 2.30E-08
Lead (all) pollutant 1140 9.44E-07
Manganese 1160 1.48E-06
Nickel pollutant 1180 1.80E-05
Mercury (all) pollutant 1190 3.15E-07
Diesel Engine Exhaust Part 1350 2.57E-02
PAH's (non-speciated) 1840 2.35E-06
Nitrous Oxide (N2O) 2030 1.37E-04
Nitrogen Oxides (part not 2990 3.60E-01
Sulfur Dioxide (SO2) 3990 1.67E-04
Carbon Monoxide (CO) pollu 4990 7.82E-02
Carbon Dioxide, non-biogen 6960 1.71E+01
Methane (CH4) 6970 6.84E-04

4 Emergency Standby Diesel Generator Set
C22BG098
Benzene 41 5.29E-04
Formaldehyde 124 4.38E-05
Organics (part not spec el 990 6.24E-03
Arsenic (all) 1030 4.61E-07
Beryllium (all) pollutant 1040 2.70E-07
Cadmium 1070 1.15E-06
Chromium (hexavalent) 1095 2.38E-08
Lead (all) pollutant 1140 9.77E-07
Manganese 1160 1.53E-06
Nickel pollutant 1180 1.86E-05
Mercury (all) pollutant 1190 3.26E-07
Diesel Engine Exhaust Part 1350 2.27E-03
PAH's (non-speciated) 1840 2.43E-06
Nitrous Oxide (N2O) 2030 1.42E-04
Nitrogen Oxides (part not 2990 1.29E-01
Sulfur Dioxide (SO2) 3990 1.73E-04
Carbon Monoxide (CO) pollu 4990 1.26E-02
Carbon Dioxide, non-biogen 6960 1.77E+01
Methane (CH4) 6970 7.09E-04

PLANT TOTAL:

lbs/day	Pollutant
1.80E-06	Arsenic (all) (1030)
2.06E-03	Benzene (41)
1.05E-06	Beryllium (all) pollutant (1040)
4.49E-06	Cadmium (1070)
6.91E+01	Carbon Dioxide, non-biogenic CO2 (6960)
2.47E-01	Carbon Monoxide (CO) pollutant (4990)
9.29E-08	Chromium (hexavalent) (1095)
7.94E-02	Diesel Engi -1350
1.71E-04	Formaldehyde (124)
3.81E-06	Lead (all) pollutant (1140)
5.98E-06	Manganese (1160)
1.27E-06	Mercury (all) pollutant (1190)
2.76E-03	Methane (CH4) (6970)
7.26E-05	Nickel pollutant (1180)
1.21E+00	Nitrogen O) (2990)
5.52E-04	Nitrous Oxide (N2O) (2030)
8.03E-02	Organics (p cluding Methane (990)
9.47E-06	PAH's (non-speciated) (1840)
6.73E-04	Sulfur Dioxide (SO2) (3990)

DPM Cancer Risk From Diesel Emergency Generators
Switch and Data CA Eleven LLC

DPM Emission Rates			
	Annual	DPM Emissions	
	Operation	Daily*	Annual
Source Type	(hr)	(lb/day)	(lb/yr)
Data Center Generators (4)	-	0.0794	29.0

* Total emissions from 4 generators From BAAQMD for P# 18976

Modeling Information	
Model:	ISCST3
Source	Generator
Source Type	Point
Meteorological Data	San Jose Airport 1991-1995
Point Source Stack Parameters	
Generator engine size (hp)	unknown (assumed 2,000 kW)
Stack Height** (ft)	15
Stack Diameter** (ft)	1.50
Stack Exit Velocity** (ft/sec)	141
Exhaust Temperature** (F)	750
Hourly Emission Rate (lb/hr)***	0.0033
Building Downwash Information	
Water Co. Building	
Building Height (ft)	25
Building Length (ft)	145
Building Width (ft)	100

** Based on 2,000 kW Caterpillar 3516C diesel generator

*** Hourly emission rate based on annual emissions and 8,760 hours per year.

Cancer Risk Calculation Method

Inhalation Dose = C_{air} x DBR x A x HD x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air (µg/m^3)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
HD = daily exposure (hours/day/24)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Inhalation Dose Factors

	Value[1]							
Exposure Type	DBR (L/kg BW-day)	A (-)	Exposure (hr/day)	Exposure (days/week)	Exposure (week/year)	EF (days/yr)	ED (Years)	AT (days)
Residential (70-Year)	302	1	24	7	50	350	70	25,550

[1] Default values recommended by OEHHA& Bay Area Air Quality Management District

Cancer Risk (per million) = Inhalation Dose x CRAF x CPF x 10^6
= URF x Cair

Where: CPF = Cancer potency factor (mg/kg-day)$^{-1}$
CRAF = Cancer Risk Adjustment Factor
URF =Unit risk factor (cancer risk per µg/m^3)

Unit Risk Factor for DPM

Exposure Type	CPF (mg/kg-day)$^{-1}$	CRAF (-)	URF *DPM*
Residential (70-Yr Exposure)	1.10E+00	1.7	**541.5**

Model Results and Cancer Risks

Exposure Type	Distance to Maximum		DPM/PM2.5 Annual Ave (µg/m^3)	DPM Cancer Risk (per million)
Residential (70-Yr Exposure)	256 feet	78 meters	0.01564	**8.5**

Construction Health Risk Modeling

Raintree Site, Sunnyvale, CA - Without Mitigation
DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2014	Construction	0.0907	RAINTREE	181.4	0.05522	6.96E-03	52,148	1.33E-07
2015	Construction	0.2750	RAINTREE	550.0	0.16743	2.11E-02	52,148	4.05E-07
2016	Construction	0.1568	RAINTREE	313.6	0.09546	1.20E-02	52,148	2.31E-07

Notes:
Emissions assumed to be evenly distributed over each construction areas

hr/day =	9	(7 am - 4 pm)
days/yr =	365	
hours/year =	3285	

Raintree Site, Sunnyvale, CA - With Mitigation
DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2014	Construction	0.0359	RAINTREE	71.8	0.02186	2.75E-03	52,148	5.28E-08
2015	Construction	0.0719	RAINTREE	143.8	0.04377	5.52E-03	52,148	1.06E-07
2016	Construction	0.0475	RAINTREE	95.0	0.02892	3.64E-03	52,148	6.99E-08

Notes:
Emissions assumed to be evenly distributed over each construction areas

hr/day =	9	(7 am - 4 pm)
days/yr =	365	
hours/year =	3285	

Raintree Site, Sunnyvale, CA - Without Mitigation
PM2.5 Fugitive Dust Construction Emissions for Modeling

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	DPM Emission Rate $g/s/m^2$
2014	Construction	RAINTREE	0.1692	338.4	0.10301	1.30E-02	52,148	2.49E-07
2015	Construction	RAINTREE	0.1483	296.6	0.09029	1.14E-02	52,148	2.18E-07
2016	Construction	RAINTREE	0.0039	7.7	0.00234	2.95E-04	52,148	5.66E-09

Notes:
Emissions assumed to be evenly distributed over each construction areas

hr/day =	9	(7 am - 4 pm)
days/yr =	365	
hours/year =	3285	

Raintree Site, Sunnyvale, CA - With Mitigation
PM2.5 Fugitive Dust Construction Emissions for Modeling

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	DPM Emission Rate $g/s/m^2$
2014	Construction	RAINTREE	0.0153	30.6	0.00932	1.17E-03	52,148	2.25E-08
2015	Construction	RAINTREE	0.0187	37.4	0.01139	1.43E-03	52,148	2.75E-08
2016	Construction	RAINTREE	0.0039	7.7	0.00234	2.95E-04	52,148	5.66E-09

Notes:
Emissions assumed to be evenly distributed over each construction areas

hr/day =	9	(7 am - 4 pm)
days/yr =	365	
hours/year =	3285	

Raintree Health Impacts

Health Impact Summary - 1.8 meter Receptor Height

Construction Year	UNMITIGATED					
	Maximum Concentrations		Cancer Risk (per million)		Hazard Index	Maximum Annual PM2.5 Concentration
	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Child	Adult	(-)	($\mu g/m^3$)
2014	0.0541	0.1276	4.7	0.2	0.011	0.182
2015	0.1648	0.1118	14.4	0.7	0.033	0.277
2016	0.0940	0.0029	3.9	0.4	0.019	0.097
Total	-	-	**23.1**	**1.4**	-	-
Maximum Annual	0.1648	0.1276			**0.033**	**0.277**

Construction Year	MITIGATED					
	Maximum Concentrations		Cancer Risk (per million)		Hazard Index	Maximum Annual PM2.5 Concentration
	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Child	Adult	(-)	($\mu g/m^3$)
2014	0.0215	0.0116	1.9	0.1	0.004	0.033
2015	0.0432	0.0141	3.8	0.2	0.009	0.057
2016	0.0284	0.0029	1.2	0.1	0.006	0.031
Total	-	-	**6.8**	**0.4**	-	-
Maximum Annual	0.0432	0.0141	-	-	**0.009**	**0.057**

Health Impact Summary - 4.85 meter Receptor Height

Construction Year	UNMITIGATED					
	Maximum Concentrations		Cancer Risk (per million)		Hazard Index	Maximum Annual PM2.5 Concentration
	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Child	Adult	(-)	($\mu g/m^3$)
2014	0.0545	0.1098	4.8	0.2	0.011	0.164
2015	0.1658	0.0961	14.5	0.8	0.033	0.262
2016	0.0946	0.0025	3.9	0.4	0.019	0.097
Total	-	-	**23.2**	**1.4**	-	-
Maximum Annual	0.1658	0.1098			**0.033**	**0.262**

Construction Year	MITIGATED					
	Maximum Concentrations		Cancer Risk (per million)		Hazard Index	Maximum Annual PM2.5 Concentration
	Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Child	Adult	(-)	($\mu g/m^3$)
2014	0.0216	0.0099	1.9	0.1	0.004	0.032
2015	0.0434	0.0122	3.8	0.2	0.009	0.056
2016	0.0286	0.0025	1.2	0.1	0.006	0.031
Total	-	-	**6.9**	**0.4**	-	-
Maximum Annual	0.0434	0.0122	-	-	**0.009**	**0.056**

Raintree Site, Sunnyvale, CA - Construction Impacts - Unmitigated Emissions
Maximum DPM Cancer Risk Calculations From Construction
Off-Site Residential Receptor Locations - 1.8 meters

Cancer Risk (per million) = CPF x Inhalation Dose x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Values

Parameter	Child	Adult
CPF =	1.10E+00	1.10E+00
DBR =	581	302
A =	1	1
EF =	350	350
AT =	25,550	25,550

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Year	Exposure Duration (years)	Child - Exposure Information DPM Conc (ug/m3) Year	Child - Exposure Information DPM Conc (ug/m3) Annual	Exposure Adjust Factor	Child Cancer Risk (per million)	Adult - Exposure Information Modeled DPM Conc (ug/m3) Year	Adult - Exposure Information Modeled DPM Conc (ug/m3) Annual	Exposure Adjust Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
1	1	2014	0.0541	10	4.74	2014	0.0541	1	0.25	0.1276	0.182
2	1	2015	0.1648	10	14.42	2015	0.1648	1	0.75	0.1118	0.277
3	1	2016	0.0940	4.75	3.91	2016	0.0940	1	0.43	0.0029	0.097
4	1		0.0000	3	0.00		0.0000	1	0.00		
5	1		0.0000	3	0.00		0.0000	1	0.00		
6	1		0.0000	3	0.00		0.0000	1	0.00		
7	1		0.0000	3	0.00		0.0000	1	0.00		
8	1		0.0000	3	0.00		0.0000	1	0.00		
9	1		0.0000	3	0.00		0.0000	1	0.00		
10	1		0.0000	3	0.00		0.0000	1	0.00		
11	1		0.0000	3	0.00		0.0000	1	0.00		
12	1		0.0000	3	0.00		0.0000	1	0.00		
13	1		0.0000	3	0.00		0.0000	1	0.00		
14	1		0.0000	3	0.00		0.0000	1	0.00		
15	1		0.0000	3	0.00		0.0000	1	0.00		
16	1		0.0000	3	0.00		0.0000	1	0.00		
17	1		0.0000	1.5	0.00		0.0000	1	0.00		
18	1		0.0000	1	0.00		0.0000	1	0.00		
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65	1		0.0000	1	0.00		0.0000	1	0.00		
66	1		0.0000	1	0.00		0.0000	1	0.00		
67	1		0.0000	1	0.00		0.0000	1	0.00		
68	1		0.0000	1	0.00		0.0000	1	0.00		
69	1		0.0000	1	0.00		0.0000	1	0.00		
70	1		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk					**23.07**				**1.42**		

Raintree Site, Sunnyvale, CA - Construction Impacts - Unmitigated Emissions
Maximum DPM Cancer Risk Calculations From Construction
Off-Site Residential Receptor Locations - 4.85 meters

Cancer Risk (per million) = CPF x Inhalation Dose x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Values

Parameter	Child	Adult
CPF =	1.10E+00	1.10E+00
DBR =	581	302
A =	1	1
EF =	350	350
AT =	25,550	25,550

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Year	Exposure Duration (years)	Child - Exposure Information DPM Conc (ug/m3) Year	Annual	Exposure Adjust Factor	Child Cancer Risk (per million)	Adult - Exposure Information Modeled DPM Conc (ug/m3) Year	Annual	Exposure Adjust Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
1	1	2014	0.0545	10	4.77	2014	0.0545	1	0.25	0.1098	0.164
2	1	2015	0.1658	10	14.52	2015	0.1658	1	0.75	0.0961	0.262
3	1	2016	0.0946	4.75	3.93	2016	0.0946	1	0.43	0.0025	0.097
4	1		0.0000	3	0.00		0.0000	1	0.00		0.000
5	1		0.0000	3	0.00		0.0000	1	0.00		0.000
6	1		0.0000	3	0.00		0.0000	1	0.00		
7	1		0.0000	3	0.00		0.0000	1	0.00		
8	1		0.0000	3	0.00		0.0000	1	0.00		
9	1		0.0000	3	0.00		0.0000	1	0.00		
10	1		0.0000	3	0.00		0.0000	1	0.00		
11	1		0.0000	3	0.00		0.0000	1	0.00		
12	1		0.0000	3	0.00		0.0000	1	0.00		
13	1		0.0000	3	0.00		0.0000	1	0.00		
14	1		0.0000	3	0.00		0.0000	1	0.00		
15	1		0.0000	3	0.00		0.0000	1	0.00		
16	1		0.0000	3	0.00		0.0000	1	0.00		
17	1		0.0000	1.5	0.00		0.0000	1	0.00		
18	1		0.0000	1	0.00		0.0000	1	0.00		
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65	1		0.0000	1	0.00		0.0000	1	0.00		
66	1		0.0000	1	0.00		0.0000	1	0.00		
67	1		0.0000	1	0.00		0.0000	1	0.00		
68	1		0.0000	1	0.00		0.0000	1	0.00		
69	1		0.0000	1	0.00		0.0000	1	0.00		
70	1		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk					**23.22**				**1.43**		