APPENDIX C
AIR QUALITY DATA AND HEALTH RISK ASSESSMENT

SCREENING-LEVEL HEALTH RISK ASSESSMENT DOUGLAS AVENUE MULTI-FAMILY RESIDENTIAL DEVELOPMENT PROJECT

1128-1132 Douglas Avenue
Burlingame, California

Prepared For:

Panorama Environmental, Inc.
One Embarcadero Center, Suite 740
San Francisco, CA 94111

Prepared By:

Northgate Environmental Management, Inc.
428 13th Street, 4th Floor
Oakland, California 94612

March 24, 2016

Project No. 1320.01

DRAFT
Screening-Level Health Risk Assessment Douglas Avenue Multi-Family Residential Development Project
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TABLE OF CONTENTS

INTRODUCTION 1
PROJECT UNDERSTANDING 1
METHODOLOGY AND SIGNIFICANCE CRITERIA 2
PROJECT CONSTRUCTION HEALTH RISKS 3
Findings for Project Construction at 1128-1132 Douglas Avenue 3
Findings for Project Construction at 524 Oak Grove Avenue 4
CUMULATIVE HEALTH RISKS 5
Cumulative Findings at the MEISR near 1128-1132 Douglas Avenue 6
Cumulative Findings at the MEISR near 524 Oak Grove Road 8
RECOMMENDATIONS 9
FINDINGS 9
REFERENCES 10

TABLES

1. BAAQMD-Permitted Stationary TAC Sources within the 1128-1132 Douglas Avenue Zone of Influence
2. Cumulative TAC Impacts at the MEISR in the 1128-1132 Douglas Avenue Project Site Zone of Influence

FIGURES

1. Project Site Location
2. 1128-1132 Douglas Avenue Project Site and Potentially Significant Toxic Air Contaminant Sources
3. 924 Oak Grove Avenue Project Site and Potentially Significant Toxic Air Contaminant Sources

APPENDICES

A Calculations Of Project Toxic Air Contaminant Emissions
B SCREEN3 Risk Model Output: Average Construction Fleet and Mitigation Measure AIR-1
C Douglas Avenue Cumulative Toxic Air Contaminant Emissions

INTRODUCTION

At the request of Panorama Environmental, Inc., Northgate Environmental Management, Inc. prepared a screening-level Health Risk Assessment (HRA) to evaluate potential public health effects of toxic air contaminants (TACs) emissions associated with a proposed multi-family residential development at a site in central Burlingame, California. The methodology and significance thresholds used in this HRA are specified in the Bay Area Air Quality Management District's (BAAQMD's) *California Environmental Quality Act Air Quality Guidelines* (*CEQA Guidelines;* Updated May 2012) and *Recommended Methods for Screening and Modeling Local Risks and Hazards* (May 2012).

PROJECT UNDERSTANDING

A 29-unit (45,770 sq. ft.), multi-family apartment building (Project) is proposed at 1128-1132 Douglas Avenue, a site within the Burlingame Downtown Specific Plan Area. An existing two-story, single-family residential building at 1128 Douglas Avenue will be removed, relocated to 524 Oak Grove Avenue, and renovated; while an existing 4-story, multi-family apartment building at 1128 Douglas Avenue, and another existing two-story single-family residence at 1132 Douglas Avenue, will be demolished.

Within about 200 feet of the 1128-1132 Douglas Avenue Project site, the existing land uses are all residential. Outside this range, yet still within 1,000 feet of the Project site, are City government uses (i.e., City Hall and the City Clerk's offices) to the south, the commercial uses of downtown Burlingame to the east, major transportation facilities (i.e., California Drive, and the Caltrain rail line and Burlingame station) and Burlingame High School to the north, and predominantly residential uses to the west.

Within a few hundred feet of the 524 Oak Grove Avenue Project site, the existing land uses are all residential. Outside this range, yet still within 1,000 feet of the Project site, are additional residential uses to the east and west, Highway 101 to the north, and Burlingame High School to the south.

See **Figure 1** for the regional setting of the two Project sites and an overview of their local contexts.

METHODOLOGY AND SIGNIFICANCE CRITERIA

Using the screening methodologies defined in the *CEQA Guidelines*, this HRA quantitatively estimates cancer risk, chronic non-cancer health hazard, and incremental $PM_{2.5}$ (i.e., particulate matter less than 2.5 microns in diameter) concentrations from Project construction equipment TAC emissions at the 1128-1132 Douglas Avenue site to the adjacent existing residential uses (i.e., in this case, the Maximally Exposed Individual Sensitive Receptor - MEISR). Since Project construction equipment TAC emissions from activity on the 524 Oak Grove Avenue would be very limited, their risks, hazards, and $PM_{2.5}$ impacts to the MEISR (i.e., in this case, the relocated single-family residence itself) were assessed qualitatively. Since the Project is a residential development and will not include significant TAC sources when complete, its operational TAC emissions were assumed to be minimal and their impacts were not assessed quantitatively or qualitatively.

The *CEQA Guidelines* contain recommended thresholds for cancer risk and chronic non-cancer health hazard associated with project TAC emissions, and a threshold for project incremental $PM_{2.5}$ ambient concentrations. Project TAC impacts that exceed any of the following thresholds at the MEISR are considered significant:

- An excess cancer risk level of more than 10 in one million, or a non-cancer hazard index (HI) greater than 1.0.
- An incremental increase of greater than 0.3 micrograms per cubic meter (µg/m3) to the annual average $PM_{2.5}$ concentrations.

The *CEQA Guidelines* also require a cumulative evaluation of TAC impacts, which include the impacts of TACs emitted from other substantial TAC sources within the Project site's "zone of influence" (i.e., the area within a 1,000-foot radius from the property line of the Project site) in addition to the Project's emission sources. These other TAC sources within the zone of influence include, by BAAQMD requirements, all freeways, state highways and high-volume roadways (i.e., > 10,000 vehicles per day or > 1,000 trucks per day), and all stationary TAC sources currently operating under BAAQMD permits.

If the combined impacts from the Project and other cumulative TAC sources at the MEISR exceed any of the following thresholds, it is considered cumulatively significant:

- A combined excess cancer risk levels of more than 100 in one million.
- A combined non-cancer HI greater than 10.0.

- A combined incremental increase in annual average $PM_{2.5}$ concentrations greater than 0.8 $\mu g/m^3$.

PROJECT CONSTRUCTION HEALTH RISKS

Since the only Project sources of TAC emissions are the diesel-powered equipment to be used for its construction, the estimates of Project cancer risk and chronic non-cancer hazard analyses in the HRA are based on MEISR exposure to diesel particulate matter (DPM) - a chemically complex component of diesel exhaust, which is a recognized TAC and a known carcinogen.

Findings for Project Construction at 1128-1132 Douglas Avenue

Project emissions of DPM (which is essentially all $PM_{2.5}$) were estimated using CalEEMod, an emission model developed by the South Coast Air Quality Management District and now widely used throughout California for CEQA purposes. The model default assumptions for construction projects based only on general definitions of project type and size were supplemented with Project-specific equipment/phase/schedule data. Calculations of Project TAC emissions are provided in Appendix A.

Cancer risk is the probability of developing cancer from exposure to carcinogenic substances. Following *CEQA Guidelines* methodology, incremental cancer risks from Project construction equipment DPM emissions were estimated by applying established DPM toxicity factors to modeled DPM concentrations (provided in this case by SCREEN3, a screening model recommended by the *CEQA Guidelines*) at the MEISR (in this case, the closest existing residence about 10 feet north of the Project site boundary). The cancer risk at the MEISR from Project construction DPM would be 5.2 per million (Appendix B), which would be below the BAAQMD threshold of 10 per million, a less-than-significant impact for CEQA purposes.

Adverse non-carcinogenic health impacts from long-term TAC exposures are measured by a hazard index (HI), which is defined as the ratio of a project-related TAC exposure level to an accepted reference exposure level (REL), the latter determined by California's Office of Environmental Health Hazard Assessment (OEHHA). If the HI is greater than 1.0, then the impact is considered to be significant. The chronic non-cancer reference exposure level for DPM as determined by OEHHA is 5 $\mu g/m^3$. The chronic non-cancer HI at the MEISR (in this case, the closest existing residence north of the Project site) from Project construction would be 0.13 (see Appendix B), well below the BAAQMD's threshold of 1.0, a less-than-significant impact for CEQA purposes.

The modeled annual $PM_{2.5}$ concentration at the MEISR (in this case, the closest existing residence north of the Project site) from Project construction, however, would be 0.67 µg/m^3 (see Appendix B) and would exceed the Project-level 0.3 µg/m^3 CEQA threshold for $PM_{2.5}$. With implementation of the following mitigation measure, the Project's maximum annual $PM_{2.5}$ concentration increments would be reduced to 0.18 µg/m^3 (see Appendix B), which is below the BAAQMD threshold of 0.3 µg/m^3 and, therefore, a less-than-significant impact with the specified mitigation.

> Mitigation Measure AIR-1: The Project construction contractor shall implement the following BAAQMD *Enhanced Exhaust Emissions Reduction Measures for Project Construction Equipment* measures to further reduce construction-related exhaust emissions:
>
> Project off-road equipment greater than 25 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities shall meet the following requirements:
>
> - All backhoes engines shall meet CARB Tier 4 off-road emission standards.
> - All other equipment engines shall meet or exceed CARB Tier 3 off-road emission standards or be retrofitted with a CARB Level 2 diesel particulate filter (DPF).

Findings for Project Construction at 524 Oak Grove Avenue

Since the only Project construction activities planned for the 524 Oak Grove Avenue site would be the preparation of a foundation for and the placement on-site of one single-family residence moved there from its existing location at 1128 Douglas Avenue, very limited numbers of diesel-powered construction equipment (e.g., a concrete truck and backhoe for foundation preparation, a crane to place the house on the new foundation, etc.) and very limited operating time (e.g., few days to a few weeks) would be required. Thus, Project construction DPM emissions at this site would be much smaller in quantity and much more limited in duration compared with DPM emissions at 1128-1132 Douglas Avenue. Thus, Project cancer risk, chronic non-cancer hazard, and $PM_{2.5}$ impacts at the MEISR near the 524 Oak Grove Avenue site would be less than significant.

CUMULATIVE HEALTH RISKS

The following BAAQMD screening tools[1] were used to locate and/or evaluate the potential for TAC emissions from freeways, state highways, high-volume roadways, and BAAQMD-permitted stationary TAC sources in the zones of influence around the 1128-1132 Douglas Avenue and 524 Oak Grove Avenue Project sites that were used in the cumulative analysis:

- Stationary Source Screening Analysis Tool: The BAAQMD mapped the locations of all BAAQMD-permitted stationary air pollutant sources in Google Earth and provided files for each such facility containing cancer risk, health hazard, and $PM_{2.5}$ concentration data that could be accessed by any Google Earth user. Google Earth's measurement tool can be used to determine the distance from each stationary source to any sensitive receptor of interest.
- Highway Screening Analysis Tool: The BAAQMD provided files for all segments of all Bay Area freeways and state highways containing cancer risk, health hazard, and $PM_{2.5}$ concentration data at locations within 1,000 feet of roadside that could be accessed by any Google Earth user.
- Roadway Screening Analysis Calculator: The BAAQMD provided a tool that estimates cancer risk and $PM_{2.5}$ concentration within 1,000 feet of any Bay Area local roadway provided the 24-hour traffic volume for it is entered.

Although freight and passenger trains are often hauled by diesel-powered locomotives, the BAAQMD has provided no similar screening tool to evaluate risks/hazards from locomotive DPM to sensitive receptors along the Bay Area's railroad lines. However, as part of the general evaluation of TAC risks/hazards BAAQMD did for *Plan Bay Area*, a long-range integrated transportation and land-use/housing strategy for the San Francisco Bay Area through the year 2040, BAAQMD determined a generally applicable screening distance for Bay Area sensitive receptors near railroad facilities. If any sensitive receptor is located 200 feet or more from any Bay Area rail line/station, no significant health risk/hazard would be expected to receptors near rail lines/stations from locomotive DPM emissions.[2]

[1] All available on the BAAQMD website: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools

[2] Plan Bay Area, Environmental Impact Report, Appendix E: Air Quality Analysis Methodology, Page E-13 (Association of Bay Area Governments & Metropolitan Transportation Commission; Approved July 2013); All Plan Bay Area Elements, including the EIR are available at: http://planbayarea.org/plan-bay-area/plan-elements.html ; the Air Quality Appendix is available at: http://planbayarea.org/pdf/Draft_EIR_Chapters/Appendix_E_Air_Quality_Methodology_032713.pdf

Figure 2 and Figure 3 illustrate the 1,000-foot zones of influence around the 1128-1132 Douglas Avenue and 924 Oak Grove Road Project sites, respectively, and show the potentially significant stationary, roadway, and rail line/station TAC sources within or near them.

All TAC emissions from freeways, high-volume roadways, and stationary TAC sources in the zones of influence around the 1128-1132 Douglas Avenue and 524 Oak Grove Avenue Project sites are provided in Appendix C.

Cumulative Findings at the MEISR near 1128-1132 Douglas Avenue

Five stationary TAC sources were identified within the 1128-1132 Douglas Avenue Project Site zone of influence using the Stationary Source Screening Analysis Tool. The risk, hazard, and $PM_{2.5}$ concentration data retrieved for these sources is displayed in **Table 1**. That these data are the most recent available for these sources was confirmed by the BAAQMD[3]; they represent maximum values for risk, hazard, and $PM_{2.5}$ concentration at locations close to each source.

TABLE 1: BAAQMD-Permitted Stationary TAC Sources within the 1128-1132 Douglas Avenue Zone of Influence

BAAQMD Source #	Facility	Address	Cancer Risk	Hazard Index	PM2.5 Concentration
From Permitted Stationary TAC Sources*					
5283	Burlingame One-Hour Cleaners	507 California Drive	10.5	0.028	0.000
14468	City of Burlingame (Emergency Generator)	425 California Avenue	15.06	0.005	0.003
14474	City of Burlingame (Emergency Generator)	501 Primrose Road	2.05	0.001	0.000
G5709	Valero (Gasoline Dispensing Facility)	601 California Drive	7.766	0.013	----
14937	Georges Holiday Cleaners	741 California Drive	0.00	0.000	0.000

* The tabulated cancer risks, hazard indexes, and $PM_{2.5}$ concentration values represent maximum values at nearby reference locations. At more distant locations, risks, hazards and $PM_{2.5}$ concentrations would be substantially reduced from the values shown.

Highway 101 and El Camino Real (State Highway 82) are major sources of TACs (i.e., from the motor vehicles they carry), but do not pass close enough to the Project site to cross the zone of influence. There is only one local street in the zone of influence with a 24-hour traffic volume

[3] Confirmed by email from BAAQMD (Alison Kirk, Senior Environmental Planner), 3/1/16.

greater than 10,000: California Drive.[4] Use of the Roadway Screening Analysis Calculator with the the most recent 24-hour count (i.e., about 12,000 per day) estimates a cancer risk of 1.56 and an annual $PM_{2.5}$ concentration of 0.038 µg/m^3 at the MEISR.

The Caltrain rail line passes within about 500 feet of the Project site; thus, a segment of the line is included in the zone of influence. However, the Caltrain line is outside the 200-foot screening distance established by the BAAQMD. Therefore, TAC emissions from Caltrain diesel locomotives do not pose a substantial TAC risk at the MEISR or to the future residents of the Project site.

The *CEQA Guidelines* require the tallying of risk, hazard, and $PM_{2.5}$ concentrations at the MEISR from all identified substantial TAC sources in the zone of influence and their comparison with the cumulative health risk, hazard, and $PM_{2.5}$ concentration thresholds. As shown in **Table 2**, the cumulative cancer risk, HI, and $PM_{2.5}$ levels at the MEISR all be below all the BAAQMD cumulative significance thresholds. Thus, cumulative TAC impacts at the 1128-1132 Douglas Avenue site would be less than significant.

TABLE 2: Cumulative TAC Impacts at the MEISR in the 1128-1132 Douglas Avenue Project Site Zone of Influence

BAAQMD Source #	Facility	Address	Cancer Risk	Hazard Index	PM2.5 Concentration
From Permitted Stationary TAC Sources*					
5283	Burlingame One-Hour Cleaners	507 California Drive	< 10.0	< 0.028	0.000
14468	City of Burlingame (Emergency Generator)	425 California Avenue	0.60	< 0.005	0.000
14474	City of Burlingame (Emergency Generator)	501 Primrose Road	0.50	< 0.001	0.000
G5709	Valero (Gasoline Dispensing Facility)	601 California Drive	0.34	< 0.013	----
14937	Georges Holiday Cleaners	741 California Drive	0.00	0.000	0.000
From Major Roadways**					
California Drive			1.56	----	0.038
Project Emission Source					
Project Construction (as estimated at the maximum exposed existing residential receptor just north of the Project site)***			1.43	0.04	0.18
Total Cumulative Impacts			**< 14.43**	**<0.09**	**0.22**
Cumulative Significance Thresholds			**100**	**10**	**0.8**
Cumulatively Significant Impact?			**No**	**No**	**No**

[4] Based on the most recent traffic counts on California Drive north of Peninsula Drive, 4/29/14; received by email from the City of Burlingame, 3/14/16.

BAAQMD Source #	Facility	Address	Cancer Risk	Hazard Index	PM2.5 Concentration

* The tabulated stationary source cancer risks, hazard indexes, and $PM_{2.5}$ concentrations have been adjusted from the maximum values to account for TAC dispersion with distance from the sources. At the location of the MEISR, risks, hazards and concentrations due to each stationary source would be substantially reduced from the corresponding values displayed in Table 1 according to BAAQMD-provided distance adjustment factors.

** The BAAQMD Roadway Screening Analysis Calculator provides the tabulated cancer risk, hazard index, and $PM_{2.5}$ concentration from California Drive at the MEISR about 300 feet to the south.

***The Project construction $PM_{2.5}$ increment (as tabulated) is reduced to a less-than-significant level relative to the CEQA project-level significance threshold, and cancer risk and hazard are also reduced further, by requiring that Project backhoes have Tier 4 engines and all other construction equipment have Tier 3 engines or be retrofitted with CARB Level 2 DPFs.

Cumulative Findings at the MEISR near 524 Oak Grove Road

No stationary TAC sources were identified within the 524 Oak Grove Road project site zone of influence using the Stationary Source Screening Analysis Tool.

Highway 101 is a major sources of TACs (i.e., from the motor vehicles it carries) and is the only substantial source of TACs that that could have a cumulative inpact on the single-family residence that is proposed to be moved to this site from 1128-1132 Douglas Avenue. This residence (which is the MEISR for this site) would be located about 300 feet south of the closest traveled lanes of Highway 101.

The BAAQMD Highway Screening Analysis Tool was used to access the relevent cancer risk, health hazard, and $PM_{2.5}$ concentration for the segment of Highway 101 that passes closest to 524 Oak Grove Avenue; those values are 32.9, 0.03, and 0.31, respectively. Although none of these values exceed the CEQA cumulative significance thresholds, the single-source cancer risk and annual $PM_{2.5}$ concentration from Highway 101 exceed the CEQA project-level significance thresholds. However, with implementation of the following mitigation measure, the cancer risk and annual $PM_{2.5}$ concentration increment inside the relocated residence would be reduced below the BAAQMD thresholds of 10 and 0.3 $\mu g/m^3$, respectively, and, therefore, would be less than significant with the specified mitigation.

> Mitigation Measure AIR-2: Air filtration with a minimum efficiency reporting value (MERV) of 13 or greater shall be installed at the relocated residence at 524 Oak Grove Avenue. The ventilation system with MERV13 filters shall be operated to provide one air exchange per hour of outside air or four air exchanges per hour of recirculated air to provide an 80 percent or greater reduction of outdoor fine particulate matter (including as DPM).

RECOMMENDATIONS

The identified project-level and cumulative health risks related to TAC exposure shall be reduced to acceptable levels by implementing the following measures: (1) of the diesel-powered construction equipment to be used for Project construction at 1128-1132 Douglas Avenue, all backhoes shall have CARB Tier 4 engines, and all other equipment shall have CARB Tier 3 engines or be retrofitted with diesel particulate filters (DPF Level 2 or higher); (2) the single-family residence relocated to 524 Oak Grove Avenue shall be fitted with an air filtration system with a MERV of 13 or greater to provide indoor air with an 80 percent or greater reduction of outdoor fine particulate matter ($PM_{2.5}$) and DPM.

FINDINGS

Using BAAQMD health risk assessment screening tools, plans for apartment construction at 1128-1132 Douglas Avenue in Burlingame and movement of an existing single-family residence from that site to 524 Oak Grove Avenue were evaluated for project-level and cumulative health risk related to TAC exposure. Such health risks were identified and found to be reducible to acceptable levels under BAAQMD criteria provided: (1) of the diesel-powered construction equipment to be used for Project construction at 1128-1132 Douglas Avenue, all backhoes would have CARB Tier 4 engines, and all other equipment would have CARB Tier 3 engines or be retrofitted with diesel particulate filters (DPF Level 2 or higher); (2) the single-family residence relocated to 524 Oak Grove Avenue would be fitted with an air filtration system with a MERV of 13 or greater to provide indoor air with an 80 percent or greater reduction of outdoor fine particulate matter ($PM_{2.5}$) and DPM.

REFERENCES

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BAAQMD. *Highway Screening Analysis Tool*. http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

BAAQMD. *Roadway Screening Analysis Calculator*. http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

ICCT (International Council on Clean Transportation). California: Diesel Risk Reduction Program. http://transportpolicy.net/index.php?title=California:_Diesel_Risk_Reduction_Program

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FIGURES

APPENDIX A

CALCULATIONS OF PROJECT TOXIC AIR CONTAMINANT EMISSIONS

Douglas Ave Apartment Default Panorama Equip Tier3 & 4

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	29.00	Dwelling Unit	0.36	38,333.00	67

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Douglas Ave specific acerage, sqft, population

Construction Phase - douglas ave only. demolition decreased and site prep increased.

Off-road Equipment -

Trips and VMT - No worker or truck trips

Construction Off-road Equipment Mitigation - All Tier 3, except backhoes Tier 4

Table Name	Column Name	Default Value	New Value
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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					
2017	0.3607	0.8462	0.5687	8.3000e-004	3.8900e-003	0.0561	0.0600	8.6000e-004	0.0522	0.0530	0.0000	75.2367	75.2367	0.0207	0.0000	75.6721
Total	**0.3607**	**0.8462**	**0.5687**	**8.3000e-004**	**3.8900e-003**	**0.0561**	**0.0600**	**8.6000e-004**	**0.0522**	**0.0530**	**0.0000**	**75.2367**	**75.2367**	**0.0207**	**0.0000**	**75.6721**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.2860	0.2633	0.5664	8.3000e-004	1.7500e-003	0.0144	0.0162	3.8000e-004	0.0144	0.0148	0.0000	75.2366	75.2366	0.0207	0.0000	75.6720
Total	**0.2860**	**0.2633**	**0.5664**	**8.3000e-004**	**1.7500e-003**	**0.0144**	**0.0162**	**3.8000e-004**	**0.0144**	**0.0148**	**0.0000**	**75.2366**	**75.2366**	**0.0207**	**0.0000**	**75.6720**

	ROG	**NOx**	**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	**20.73**	**68.88**	**0.40**	**0.00**	**55.01**	**74.26**	**73.02**	**55.81**	**72.32**	**72.03**	**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	0.1861	2.5400e-003	0.2175	1.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003	0.0000	0.3517	0.3517	3.5000e-004	0.0000	0.3592
Energy	1.3800e-003	0.0118	5.0300e-003	8.0000e-005		9.6000e-004	9.6000e-004		9.6000e-004	9.6000e-004	0.0000	44.2022	44.2022	1.6400e-003	5.4000e-004	44.4030
Mobile	0.1028	0.1996	1.0495	2.2100e-003	0.1667	2.7000e-003	0.1694	0.0447	2.4800e-003	0.0472	0.0000	168.8831	168.8831	7.4100e-003	0.0000	169.0387
Waste						0.0000	0.0000		0.0000	0.0000	2.7079	0.0000	2.7079	0.1600	0.0000	6.0686
Water						0.0000	0.0000		0.0000	0.0000	0.5994	4.1871	4.7866	0.0618	1.4900e-003	6.5463
Total	**0.2902**	**0.2139**	**1.2720**	**2.3000e-003**	**0.1667**	**4.8400e-003**	**0.1716**	**0.0447**	**4.6200e-003**	**0.0493**	**3.3073**	**217.6241**	**220.9315**	**0.2312**	**2.0300e-003**	**226.4156**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1861	2.5400e-003	0.2175	1.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003	0.0000	0.3517	0.3517	3.5000e-004	0.0000	0.3592
Energy	1.3800e-003	0.0118	5.0300e-003	8.0000e-005		9.6000e-004	9.6000e-004		9.6000e-004	9.6000e-004	0.0000	44.2022	44.2022	1.6400e-003	5.4000e-004	44.4030
Mobile	0.1028	0.1996	1.0495	2.2100e-003	0.1667	2.7000e-003	0.1694	0.0447	2.4800e-003	0.0472	0.0000	168.8831	168.8831	7.4100e-003	0.0000	169.0387
Waste						0.0000	0.0000		0.0000	0.0000	2.7079	0.0000	2.7079	0.1600	0.0000	6.0686
Water						0.0000	0.0000		0.0000	0.0000	0.5994	4.1871	4.7866	0.0618	1.4900e-003	6.5453
Total	**0.2902**	**0.2139**	**1.2720**	**2.3000e-003**	**0.1667**	**4.8400e-003**	**0.1716**	**0.0447**	**4.6200e-003**	**0.0493**	**3.3073**	**217.6241**	**220.9315**	**0.2312**	**2.0300e-003**	**226.4147**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	3.5520
Total	**3.5520**

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	1/1/2017	1/5/2017	5	4	
2	Site Preparation	Site Preparation	1/14/2017	1/24/2017	5	7	
3	Grading	Grading	1/17/2017	1/18/2017	5	2	
4	Building Construction	Building Construction	1/19/2017	6/7/2017	5	100	
5	Paving	Paving	6/8/2017	6/14/2017	5	5	
6	Architectural Coating	Architectural Coating	6/15/2017	6/21/2017	5	5	

Acres of Grading (Site Preparation Phase): 0.56

Acres of Grading (Grading Phase): 0.88

Acres of Paving: 0

Residential Indoor: 77,624; Residential Outdoor: 25,875; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Cranes	1	1.00	226	0.29
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Excavators	2	8.00	162	0.38
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Bore/Drill Rigs	1	0.20	205	0.50
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	1	2.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	2.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	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

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0300e-003	0.0000	2.0300e-003	3.1000e-004	0.0000	3.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2500e-003	0.0198	0.0155	2.0000e-005		1.3100e-003	1.3100e-003		1.2500e-003	1.2500e-003	0.0000	1.9901	1.9901	3.7000e-004	0.0000	1.9979
Total	**2.2500e-003**	**0.0198**	**0.0155**	**2.0000e-005**	**2.0300e-003**	**1.3100e-003**	**3.3400e-003**	**3.1000e-004**	**1.2500e-003**	**1.5600e-003**	**0.0000**	**1.9901**	**1.9901**	**3.7000e-004**	**0.0000**	**1.9979**

APPENDIX B

SCREEN3 RISK MODEL OUTPUT:

AVERAGE CONSTRUCTION FLEET AND MITIGATION MEASURE AIR-1

1128 Douglas Avenue Residential (Only 29 Unit Apartment Bldg - Panorama Final) - HEALTH RISK/PM CONCENTRATION MODEL

Model Source Area	Area (acres)	Area (sq ft)	Area (sq m)	Long Side (feet)	Short Side (feet)	Long Side (meters)	Short Side (meters)
Project Building Footprint	**0.36**	15,675	1,456	**165**	**95**	50.3	29.0
Total Model Area	**0.36**	**15,675**	**1,456**				

SCREEN3 Model California Average Construction Fleet Contributing Model Area	Total DPM Emissions (grams)	Total Days	Daily DPM Emissions (grams)	Hours/ Day	Seconds/ Day	Average Daily Emission Rate (g/sec)	Average Daily Emission Rate/Area (g/sec*m2)	Receptor Distance (feet)	Chi/Q SCREEN3	DPM Conc Avg Hour ug/m3	DPM Annual Conc ug/m3	CHI
Project Building Footprint	47,355	365	129.74	24	86,400	1.50E-03	1.03E-06	75	**6.497E+06**	6.6994	**0.6699**	**0.1340**
	104 lbs.											
											BAAQMD Threshold	
											0.6699	**0.3**

Affected Receptor	Dose Factors: Air Conc (ug/m3)	DBR (L /kg day)	EF (days/yr)	ED (years)	CF	AT (days)	**Dose** mg/kg day	Risk Factors: Cancer Potency Factor (mg/kg day)^-1	Age Sens. Fac.	**Cancer Risk**
Closest Residence	0.6699	302	350	1.00	1.00E+00	25550	2.77E+00	1.10	1.7	5.18
										5.18 per million

BAAQMD Threshold 10 per million

1128 Douglas Avenue Residential (Only 29 Unit Apartment Bldg - Panorama Final) - HEALTH RISK/PM CONCENTRATION MODEL

Model Source Area	Area (acres)	Area (sq ft)	Area (sq m)	Long Side (feet)	Short Side (feet)	Long Side (meters)	Short Side (meters)
Project Building Footprint	**0.36**	15,675	1,456	**165**	**95**	50.3	29.0
Total Model Area	**0.36**	**15,675**	**1,456**				

SCREEN3 Model Tier 3 Engines - All Backhoe Tier 4 Contributing Model Area	Total DPM Emissions (grams)	Total Days	Daily DPM Emissions (grams)	Hours/ Day	Seconds/ Day	Average Daily Emission Rate (g/sec)	Average Daily Emission Rate/Area (g/sec*m2)	Receptor Distance (feet)	Chi/Q SCREEN3	DPM Conc Avg Hour ug/m3	DPM Annual Conc ug/m3	CHI
Project Building Footprint	13,063	365	35.79	24	86,400	4.14E-04	2.84E-07	75	**6.497E+06**	1.8481	**0.1848**	**0.0370**
	29 lbs.											
											0.1848	

Affected Receptor	Dose Factors: Air Conc (ug/m3)	DBR (L /kg day)	EF (days/yr)	ED (years)	CF	AT (days)	**Dose** mg/kg day	Risk Factors: Cancer Potency Factor (mg/kg day)^-1	Age Sens. Fac.	**Cancer Risk**
Closest Residence	0.1848	302	350	1.00	1.00E+00	25550	7.65E-01	1.10	1.7	1.43
										1.43 per million

APPENDIX C

DOUGLAS AVENUE CUMULATIVE TOXIC AIR CONTAMINANT EMISSIONS

APPENDIX C.1

DOUGLAS AVENUE STATIONARY SOURCE INQUIRY FORM

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:	Geoffrey Hornek
Affiliation:	Senior Scientist Northgate Environmental
Phone:	414-241-0236
Email:	ghornek@sonic.net
Date of Request	2/26/2016
Project Name:	1128 Douglas Avenue Apartments
Address:	1128 Douglas Avenue
City:	Burlingame
County:	San Mateo
Type (residential, commercial, mixed use, industrial, etc.):	Residential (multifamily apartment building)
Project size (# of units, or building square feet):	29 Units (45,770 sq. ft. total)

Comments: An existing 2-story, single-family residence that has been deemed to have historical significance will be relocated from this site to a lot at 524 Oak Grove Avenue in Burlingame.

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**
300	5283	Burlingame One-Hour Cleaners	507 CALIFORNIA DRIVE	10.5	0.028	0.000												0	This is the most current info I have on this source.
970	14468	City of Burlingame (Generator)	425 Carolan Avenue	15.06	0.005	0..003												0	Consider using screening values with diesel engine distance multiplier.
350	14474	City of Burlingame (Generator)	501 Primrose Road	2.05	0.001	0.000												0	Low risk/concentration. No further study required.
500	G5709	Valero	601 California Drive	7.766	0.013	na												0	Consider using screening values with gas station distance multiplier.
1000	14937	Georges Holiday Cleaners	741 California Drive	0.00	0.000	0.000												0	no risk/concentration. No further study required.
																		0	
																		0	
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																		0	

APPENDIX C.2

TRAFFIC COUNTS CALIFORNIA DRIVE BURLINGAME

PHA Transportation Consultants
510-848-9233

Description 1: Burlingame
Description 2: California Dr North of Peninsula Ave
Description 3: 14-02-402

Site: 9
Date: 4/29/2014
Tuesday

24 Hour Volume

Begin	SB		NB		Combined		Begin	SB		NB		Combined	
2:00 PM	75	371	119	448	194	819	2:00 AM	4	11	0	8	4	19
2:15 PM	106		109		215		2:15 AM	1		3		4	
2:30 PM	96		107		203		2:30 AM	3		2		5	
2:45 PM	94		113		207		2:45 AM	3		3		6	
3:00 PM	90	345	132	474	222	819	3:00 AM	2	8	2	11	4	19
3:15 PM	85		116		201		3:15 AM	1		1		2	
3:30 PM	86		113		199		3:30 AM	4		5		9	
3:45 PM	84		113		197		3:45 AM	1		3		4	
4:00 PM	98	356	130	531	228	887	4:00 AM	4	15	0	18	4	33
4:15 PM	85		128		213		4:15 AM	4		3		7	
4:30 PM	104		128		232		4:30 AM	4		10		14	
4:45 PM	69		145		214		4:45 AM	3		5		8	
5:00 PM	74	369	150	391	224	760	5:00 AM	9	59	8	59	17	118
5:15 PM	131		109		240		5:15 AM	14		8		22	
5:30 PM	140		111		251		5:30 AM	13		20		33	
5:45 PM	24		21		45		5:45 AM	23		23		46	
6:00 PM	71	330	92	479	163	809	6:00 AM	16	123	27	153	43	276
6:15 PM	93		145		238		6:15 AM	32		20		52	
6:30 PM	73		125		198		6:30 AM	32		31		63	
6:45 PM	93		117		210		6:45 AM	43		75		118	
7:00 PM	75	290	123	357	198	647	7:00 AM	53	259	67	343	120	602
7:15 PM	81		87		168		7:15 AM	48		91		139	
7:30 PM	84		77		161		7:30 AM	75		80		155	
7:45 PM	50		70		120		7:45 AM	83		105		188	
8:00 PM	76	302	62	248	138	550	8:00 AM	96	337	94	460	190	797
8:15 PM	84		57		141		8:15 AM	71		119		190	
8:30 PM	67		71		138		8:30 AM	99		104		203	
8:45 PM	75		58		133		8:45 AM	71		143		214	
9:00 PM	58	234	67	212	125	446	9:00 AM	108	327	94	431	202	758
9:15 PM	65		63		128		9:15 AM	57		111		168	
9:30 PM	59		46		105		9:30 AM	86		95		181	
9:45 PM	52		36		88		9:45 AM	76		131		207	
10:00 PM	68	177	40	115	108	292	10:00 AM	94	366	101	443	195	809
10:15 PM	39		32		71		10:15 AM	89		107		196	
10:30 PM	35		18		53		10:30 AM	86		114		200	
10:45 PM	35		25		60		10:45 AM	97		121		218	
11:00 PM	33	84	17	60	50	144	11:00 AM	96	325	103	500	199	825
11:15 PM	25		19		44		11:15 AM	84		130		214	
11:30 PM	13		18		31		11:30 AM	90		107		197	
11:45 PM	13		6		19		11:45 AM	55		160		215	
4/30/2014 12:00 AM	9	40	16	34	25	74	12:00 PM	111	385	109	445	220	830
12:15 AM	14		15		29		12:15 PM	70		123		193	
12:30 AM	10		2		12		12:30 PM	105		109		214	
12:45 AM	7		1		8		12:45 PM	99		104		203	
1:00 AM	1	17	1	10	2	27	1:00 PM	92	383	118	418	210	801
1:15 AM	6		2		8		1:15 PM	96		96		192	
1:30 AM	5		3		8		1:30 PM	99		105		204	
1:45 AM	5		4		9		1:45 PM	96		99		195	

	SB	NB	Combined
24 Hour Volume	5513 (45.3%)	6648 (54.7%)	12161

	12:00 AM - 12:00 PM			**12:00 PM - 12:00 AM**		
	SB	NB	Combined	SB	NB	Combined
Count	1887	2470	4357	3626	4178	7804
	43.3 %	56.7 %		46.5 %	53.5 %	
Peak Hour	10:15 AM	11:00 AM	10:30 AM	4:45 PM	4:15 PM	4:45 PM
Volume	368	500	831	414	551	929
Factor	0.95	0.78	0.95	0.74	0.92	0.93

APPENDIX C.3

RISK AND PM2.5 CONCENTRATION FOR CALIFORNIA DRIVE EMISSIONS

1128 Douglas Avenue - South of California Drive

County	San Mateo	
Roadway Direction	East-West	
Side of the Roadway	South	
Distance from Roadway	325	feet
Annual Average Daily Traffic (ADT)	12,000	

Results

San Mateo County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

0.038 ($\mu g/m^3$)

Cancer Risk

1.56 (per million)

Data for San Mateo County based on meteorological data collected from San Mateo Sewage Treatment Plant in 2005

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using CALINE4 air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the “Results” box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Douglas Ave Multi-Family Residential Development Project

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	29.00	Dwelling Unit	0.36	38,270.00	67
Single Family Housing	1.00	Dwelling Unit	0.20	3,948.00	4

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Construction Phase - construction scheduled based on 14 month construction schedule

Off-road Equipment - crane used for moving house.

Off-road Equipment - excavators used for underground garage. reduced hourly usage to reflect construction schedule.

Off-road Equipment - reduced number of backhoes to be consistent with equipment schedule.

Off-road Equipment - drill rig added for pile placement. generator and welder added per equipment schedule. equipment use reduced to reflect construction schedule.

Off-road Equipment - cement and mortar mizers reduced due to small lot size.

Off-road Equipment -

Grading - Material Exported from excavation of garage. Total Acres Disturbed: 0.56 acre is total for both sites. grading is for whole Douglas site plus house footprint of Oak Grove site.

Demolition -

Trips and VMT - Trip length for demolition increased to reflect distance to recycling and garbage facilities. Hauling trips for building construction increased to reflect transport of building materials. Paving trips included for import of cement and asphault. Maximum number of workers included for building construction.

Architectural Coating -

Project Characteristics -

Land Use - square footage for 5 story apartment building and 2 story single family house

Vehicle Trips - Home to work trip length reflects San Mateo County average.

Woodstoves - No fireplaces or woodstoves.

Sequestration - 4 (net) new trees added for landscaping.

Construction Off-road Equipment Mitigation -

Area Mitigation - 100 and 150 g/L reflect BAAQMD standards for gloss and high gloss paints.

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	0
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	100.00	240.00
tblConstructionPhase	NumDays	10.00	14.00
tblConstructionPhase	NumDays	2.00	5.00

tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	1.00	15.00
tblConstructionPhase	PhaseStartDate	2/3/2018	2/5/2018
tblConstructionPhase	PhaseStartDate	2/18/2017	2/20/2017
tblConstructionPhase	PhaseStartDate	2/11/2017	2/13/2017
tblConstructionPhase	PhaseStartDate	1/20/2018	1/22/2018
tblConstructionPhase	PhaseStartDate	1/21/2017	1/23/2017
tblFireplaces	FireplaceDayYear	4.29	0.00
tblFireplaces	FireplaceDayYear	6.29	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	92.40	0.00
tblFireplaces	FireplaceWoodMass	215.60	0.00
tblFireplaces	NumberGas	15.95	0.00
tblFireplaces	NumberGas	0.55	0.00
tblFireplaces	NumberNoFireplace	8.99	0.00
tblFireplaces	NumberWood	4.06	0.00
tblFireplaces	NumberWood	0.45	0.00
tblGrading	AcresOfGrading	0.00	0.41
tblGrading	AcresOfGrading	5.63	0.56
tblGrading	MaterialExported	0.00	1,000.00
tblGrading	MaterialExported	0.00	5,000.00
tblLandUse	LandUseSquareFeet	29,000.00	38,270.00
tblLandUse	LandUseSquareFeet	1,800.00	3,948.00
tblLandUse	LotAcreage	0.76	0.36
tblLandUse	LotAcreage	0.32	0.20
tblLandUse	Population	83.00	67.00
tblLandUse	Population	3.00	4.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblSequestration	NumberOfNewTrees	0.00	2.00
tblSequestration	NumberOfNewTrees	0.00	2.00
tblTripsAndVMT	HaulingTripNumber	19.00	18.00
tblTripsAndVMT	HaulingTripNumber	0.00	300.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	WorkerTripLength	12.40	30.00
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	21.00	25.00
tblVehicleTrips	HW_TL	12.40	13.90
tblVehicleTrips	HW_TL	12.40	13.90
tblWoodstoves	NumberCatalytic	0.14	0.00
tblWoodstoves	NumberCatalytic	0.04	0.00
tblWoodstoves	NumberNoncatalytic	0.14	0.00
tblWoodstoves	NumberNoncatalytic	0.04	0.00
tblWoodstoves	WoodstoveDayYear	10.82	0.00
tblWoodstoves	WoodstoveDayYear	26.24	0.00
tblWoodstoves	WoodstoveWoodMass	954.80	0.00
tblWoodstoves	WoodstoveWoodMass	1,355.20	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					
2017	0.2053	1.8440	1.4728	2.3900e-003	0.0436	0.1113	0.1549	0.0119	0.1036	0.1155	0.0000	211.3023	211.3023	0.0411	0.0000	212.1647
2018	0.3132	0.1422	0.1241	2.1000e-004	4.7000e-003	8.5900e-003	0.0133	1.2200e-003	8.0300e-003	9.2500e-003	0.0000	17.7379	17.7379	3.8200e-003	0.0000	17.8182
Total	**0.5185**	**1.9862**	**1.5969**	**2.6000e-003**	**0.0483**	**0.1199**	**0.1682**	**0.0131**	**0.1116**	**0.1247**	**0.0000**	**229.0402**	**229.0402**	**0.0449**	**0.0000**	**229.9829**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.2053	1.8440	1.4728	2.3900e-003	0.0410	0.1113	0.1523	0.0111	0.1036	0.1147	0.0000	211.3021	211.3021	0.0411	0.0000	212.1645
2018	0.3132	0.1422	0.1241	2.1000e-004	4.7000e-003	8.5900e-003	0.0133	1.2200e-003	8.0300e-003	9.2500e-003	0.0000	17.7379	17.7379	3.8200e-003	0.0000	17.8182
Total	**0.5185**	**1.9862**	**1.5969**	**2.6000e-003**	**0.0457**	**0.1199**	**0.1656**	**0.0123**	**0.1116**	**0.1239**	**0.0000**	**229.0400**	**229.0400**	**0.0449**	**0.0000**	**229.9827**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**5.42**	**0.00**	**1.56**	**6.10**	**0.00**	**0.63**	**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	0.2016	2.6200e-003	0.2250	1.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	0.3639	0.3639	3.7000e-004	0.0000	0.3715
Energy	1.6600e-003	0.0142	6.0300e-003	9.0000e-005		1.1500e-003	1.1500e-003		1.1500e-003	1.1500e-003	0.0000	48.9478	48.9478	1.7900e-003	6.1000e-004	49.1729
Mobile	0.1079	0.2095	1.1017	2.3200e-003	0.1750	2.8300e-003	0.1779	0.0470	2.6100e-003	0.0496	0.0000	177.2944	177.2944	7.7700e-003	0.0000	177.4577
Waste						0.0000	0.0000		0.0000	0.0000	3.0489	0.0000	3.0489	0.1802	0.0000	6.8328
Water						0.0000	0.0000		0.0000	0.0000	0.6201	4.3315	4.9516	0.0639	1.5400e-003	6.7720
Total	**0.3112**	**0.2263**	**1.3327**	**2.4200e-003**	**0.1750**	**5.2000e-003**	**0.1802**	**0.0470**	**4.9800e-003**	**0.0519**	**3.6690**	**230.9375**	**234.6065**	**0.2540**	**2.1500e-003**	**240.6070**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2016	2.6200e-003	0.2250	1.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	0.3639	0.3639	3.7000e-004	0.0000	0.3715
Energy	1.6600e-003	0.0142	6.0300e-003	9.0000e-005		1.1500e-003	1.1500e-003		1.1500e-003	1.1500e-003	0.0000	48.9478	48.9478	1.7900e-003	6.1000e-004	49.1729
Mobile	0.1079	0.2095	1.1017	2.3200e-003	0.1750	2.8300e-003	0.1779	0.0470	2.6100e-003	0.0496	0.0000	177.2944	177.2944	7.7700e-003	0.0000	177.4577
Waste						0.0000	0.0000		0.0000	0.0000	3.0489	0.0000	3.0489	0.1802	0.0000	6.8328
Water						0.0000	0.0000		0.0000	0.0000	0.6201	4.3315	4.9516	0.0639	1.5400e-003	6.7710
Total	**0.3112**	**0.2263**	**1.3327**	**2.4200e-003**	**0.1750**	**5.2000e-003**	**0.1802**	**0.0470**	**4.9800e-003**	**0.0519**	**3.6690**	**230.9375**	**234.6065**	**0.2540**	**2.1500e-003**	**240.6060**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	3.5520
Total	**3.5520**

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	1/3/2017	1/20/2017	5	14	
2	Site Preparation	Site Preparation	1/23/2017	2/10/2017	5	15	
3	Grading	Grading	2/13/2017	2/17/2017	5	5	
4	Building Construction	Building Construction	2/20/2017	1/19/2018	5	240	
5	Paving	Paving	1/22/2018	2/2/2018	5	10	
6	Architectural Coating	Architectural Coating	2/5/2018	2/16/2018	5	10	

Acres of Grading (Site Preparation Phase): 0.56

Acres of Grading (Grading Phase): 0.41

Acres of Paving: 0

Residential Indoor: 85,491; Residential Outdoor: 28,497; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Cranes	1	0.50	226	0.29
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Excavators	2	6.00	162	0.38
Site Preparation	Graders	1	6.00	174	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Bore/Drill Rigs	1	0.20	205	0.50
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	1	2.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Welders	1	2.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	10.00	0.00	18.00	30.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	625.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	125.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	25.00	3.00	300.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	20.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0300e-003	0.0000	2.0300e-003	3.1000e-004	0.0000	3.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.7200e-003	0.0767	0.0613	9.0000e-005		5.2400e-003	5.2400e-003		4.9900e-003	4.9900e-003	0.0000	7.7467	7.7467	1.5500e-003	0.0000	7.7792
Total	**8.7200e-003**	**0.0767**	**0.0613**	**9.0000e-005**	**2.0300e-003**	**5.2400e-003**	**7.2700e-003**	**3.1000e-004**	**4.9900e-003**	**5.3000e-003**	**0.0000**	**7.7467**	**7.7467**	**1.5500e-003**	**0.0000**	**7.7792**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	2.4400e-003	3.0800e-003	1.0000e-005	1.5000e-004	3.0000e-005	1.8000e-004	4.0000e-005	3.0000e-005	7.0000e-005	0.0000	0.5881	0.5881	0.0000	0.0000	0.5882
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	8.0000e-004	7.2600e-003	2.0000e-005	1.5300e-003	1.0000e-005	1.5400e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3094	1.3094	7.0000e-005	0.0000	1.3108
Total	**5.4000e-004**	**3.2400e-003**	**0.0103**	**3.0000e-005**	**1.6800e-003**	**4.0000e-005**	**1.7200e-003**	**4.5000e-004**	**4.0000e-005**	**4.9000e-004**	**0.0000**	**1.8975**	**1.8975**	**7.0000e-005**	**0.0000**	**1.8990**

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					9.1000e-004	0.0000	9.1000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.7200e-003	0.0767	0.0613	9.0000e-005		5.2400e-003	5.2400e-003		4.9900e-003	4.9900e-003	0.0000	7.7467	7.7467	1.5500e-003	0.0000	7.7792
Total	**8.7200e-003**	**0.0767**	**0.0613**	**9.0000e-005**	**9.1000e-004**	**5.2400e-003**	**6.1500e-003**	**1.4000e-004**	**4.9900e-003**	**5.1300e-003**	**0.0000**	**7.7467**	**7.7467**	**1.5500e-003**	**0.0000**	**7.7792**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	2.4400e-003	3.0800e-003	1.0000e-005	1.5000e-004	3.0000e-005	1.8000e-004	4.0000e-005	3.0000e-005	7.0000e-005	0.0000	0.5881	0.5881	0.0000	0.0000	0.5882
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	8.0000e-004	7.2600e-003	2.0000e-005	1.5300e-003	1.0000e-005	1.5400e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3094	1.3094	7.0000e-005	0.0000	1.3108
Total	**5.4000e-004**	**3.2400e-003**	**0.0103**	**3.0000e-005**	**1.6800e-003**	**4.0000e-005**	**1.7200e-003**	**4.5000e-004**	**4.0000e-005**	**4.9000e-004**	**0.0000**	**1.8975**	**1.8975**	**7.0000e-005**	**0.0000**	**1.8990**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-004	0.0000	5.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0112	0.1165	0.0792	1.1000e-004		6.5600e-003	6.5600e-003		6.0300e-003	6.0300e-003	0.0000	10.4017	10.4017	3.1900e-003	0.0000	10.4687
Total	**0.0112**	**0.1165**	**0.0792**	**1.1000e-004**	**5.8000e-004**	**6.5600e-003**	**7.1400e-003**	**7.0000e-005**	**6.0300e-003**	**6.1000e-003**	**0.0000**	**10.4017**	**10.4017**	**3.1900e-003**	**0.0000**	**10.4687**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.6000e-003	0.0848	0.1070	2.3000e-004	5.2100e-003	1.0200e-003	6.2400e-003	1.4300e-003	9.4000e-004	2.3700e-003	0.0000	20.4203	20.4203	1.5000e-004	0.0000	20.4234
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	2.4000e-004	3.8000e-004	3.5400e-003	1.0000e-005	6.8000e-004	1.0000e-005	6.8000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.5887	0.5887	3.0000e-005	0.0000	0.5893
Total	**7.8400e-003**	**0.0852**	**0.1106**	**2.4000e-004**	**5.8900e-003**	**1.0300e-003**	**6.9200e-003**	**1.6100e-003**	**9.4000e-004**	**2.5600e-003**	**0.0000**	**21.0090**	**21.0090**	**1.8000e-004**	**0.0000**	**21.0127**

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					2.6000e-004	0.0000	2.6000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0112	0.1165	0.0792	1.1000e-004		6.5600e-003	6.5600e-003		6.0300e-003	6.0300e-003	0.0000	10.4017	10.4017	3.1900e-003	0.0000	10.4686
Total	**0.0112**	**0.1165**	**0.0792**	**1.1000e-004**	**2.6000e-004**	**6.5600e-003**	**6.8200e-003**	**3.0000e-005**	**6.0300e-003**	**6.0600e-003**	**0.0000**	**10.4017**	**10.4017**	**3.1900e-003**	**0.0000**	**10.4686**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.6000e-003	0.0848	0.1070	2.3000e-004	5.2100e-003	1.0200e-003	6.2400e-003	1.4300e-003	9.4000e-004	2.3700e-003	0.0000	20.4203	20.4203	1.5000e-004	0.0000	20.4234
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	2.4000e-004	3.8000e-004	3.5400e-003	1.0000e-005	6.8000e-004	1.0000e-005	6.8000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.5887	0.5887	3.0000e-005	0.0000	0.5893
Total	**7.8400e-003**	**0.0852**	**0.1106**	**2.4000e-004**	**5.8900e-003**	**1.0300e-003**	**6.9200e-003**	**1.6100e-003**	**9.4000e-004**	**2.5600e-003**	**0.0000**	**21.0090**	**21.0090**	**1.8000e-004**	**0.0000**	**21.0127**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.1600e-003	0.0000	2.1600e-003	1.0700e-003	0.0000	1.0700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4200e-003	0.0205	0.0170	2.0000e-005		1.3900e-003	1.3900e-003		1.3400e-003	1.3400e-003	0.0000	2.1435	2.1435	3.6000e-004	0.0000	2.1511
Total	**2.4200e-003**	**0.0205**	**0.0170**	**2.0000e-005**	**2.1600e-003**	**1.3900e-003**	**3.5500e-003**	**1.0700e-003**	**1.3400e-003**	**2.4100e-003**	**0.0000**	**2.1435**	**2.1435**	**3.6000e-004**	**0.0000**	**2.1511**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5200e-003	0.0170	0.0214	5.0000e-005	1.0400e-003	2.0000e-004	1.2500e-003	2.9000e-004	1.9000e-004	4.7000e-004	0.0000	4.0841	4.0841	3.0000e-005	0.0000	4.0847
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-005	1.0000e-004	9.4000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1570	0.1570	1.0000e-005	0.0000	0.1572
Total	**1.5800e-003**	**0.0171**	**0.0223**	**5.0000e-005**	**1.2200e-003**	**2.0000e-004**	**1.4300e-003**	**3.4000e-004**	**1.9000e-004**	**5.2000e-004**	**0.0000**	**4.2410**	**4.2410**	**4.0000e-005**	**0.0000**	**4.2418**

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					9.7000e-004	0.0000	9.7000e-004	4.8000e-004	0.0000	4.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4200e-003	0.0205	0.0170	2.0000e-005		1.3900e-003	1.3900e-003		1.3400e-003	1.3400e-003	0.0000	2.1435	2.1435	3.6000e-004	0.0000	2.1511
Total	**2.4200e-003**	**0.0205**	**0.0170**	**2.0000e-005**	**9.7000e-004**	**1.3900e-003**	**2.3600e-003**	**4.8000e-004**	**1.3400e-003**	**1.8200e-003**	**0.0000**	**2.1435**	**2.1435**	**3.6000e-004**	**0.0000**	**2.1511**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5200e-003	0.0170	0.0214	5.0000e-005	1.0400e-003	2.0000e-004	1.2500e-003	2.9000e-004	1.9000e-004	4.7000e-004	0.0000	4.0841	4.0841	3.0000e-005	0.0000	4.0847
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-005	1.0000e-004	9.4000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1570	0.1570	1.0000e-005	0.0000	0.1572
Total	**1.5800e-003**	**0.0171**	**0.0223**	**5.0000e-005**	**1.2200e-003**	**2.0000e-004**	**1.4300e-003**	**3.4000e-004**	**1.9000e-004**	**5.2000e-004**	**0.0000**	**4.2410**	**4.2410**	**4.0000e-005**	**0.0000**	**4.2418**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1565	1.4419	0.9353	1.3800e-003		0.0958	0.0958		0.0891	0.0891	0.0000	125.5683	125.5683	0.0344	0.0000	126.2910
Total	**0.1565**	**1.4419**	**0.9353**	**1.3800e-003**		**0.0958**	**0.0958**		**0.0891**	**0.0891**	**0.0000**	**125.5683**	**125.5683**	**0.0344**	**0.0000**	**126.2910**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4200e-003	0.0381	0.0482	1.0000e-004	2.4600e-003	4.6000e-004	2.9200e-003	6.7000e-004	4.2000e-004	1.1000e-003	0.0000	9.1891	9.1891	7.0000e-005	0.0000	9.1905
Vendor	4.1400e-003	0.0308	0.0559	8.0000e-005	2.1600e-003	4.2000e-004	2.5800e-003	6.2000e-004	3.9000e-004	1.0100e-003	0.0000	7.0305	7.0305	5.0000e-005	0.0000	7.0316
Worker	8.9300e-003	0.0141	0.1328	3.0000e-004	0.0254	2.0000e-004	0.0256	6.7600e-003	1.8000e-004	6.9400e-003	0.0000	22.0750	22.0750	1.1500e-003	0.0000	22.0991
Total	**0.0165**	**0.0830**	**0.2368**	**4.8000e-004**	**0.0300**	**1.0800e-003**	**0.0311**	**8.0500e-003**	**9.9000e-004**	**9.0500e-003**	**0.0000**	**38.2946**	**38.2946**	**1.2700e-003**	**0.0000**	**38.3212**

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	0.1565	1.4419	0.9353	1.3800e-003		0.0958	0.0958		0.0891	0.0891	0.0000	125.5682	125.5682	0.0344	0.0000	126.2909
Total	**0.1565**	**1.4419**	**0.9353**	**1.3800e-003**		**0.0958**	**0.0958**		**0.0891**	**0.0891**	**0.0000**	**125.5682**	**125.5682**	**0.0344**	**0.0000**	**126.2909**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4200e-003	0.0381	0.0482	1.0000e-004	2.4600e-003	4.6000e-004	2.9200e-003	6.7000e-004	4.2000e-004	1.1000e-003	0.0000	9.1891	9.1891	7.0000e-005	0.0000	9.1905
Vendor	4.1400e-003	0.0308	0.0559	8.0000e-005	2.1600e-003	4.2000e-004	2.5800e-003	6.2000e-004	3.9000e-004	1.0100e-003	0.0000	7.0305	7.0305	5.0000e-005	0.0000	7.0316
Worker	8.9300e-003	0.0141	0.1328	3.0000e-004	0.0254	2.0000e-004	0.0256	6.7600e-003	1.8000e-004	6.9400e-003	0.0000	22.0750	22.0750	1.1500e-003	0.0000	22.0991
Total	**0.0165**	**0.0830**	**0.2368**	**4.8000e-004**	**0.0300**	**1.0800e-003**	**0.0311**	**8.0500e-003**	**9.9000e-004**	**9.0500e-003**	**0.0000**	**38.2946**	**38.2946**	**1.2700e-003**	**0.0000**	**38.3212**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.9200e-003	0.0839	0.0600	9.0000e-005		5.3200e-003	5.3200e-003		4.9500e-003	4.9500e-003	0.0000	8.2558	8.2558	2.2700e-003	0.0000	8.3035
Total	**8.9200e-003**	**0.0839**	**0.0600**	**9.0000e-005**		**5.3200e-003**	**5.3200e-003**		**4.9500e-003**	**4.9500e-003**	**0.0000**	**8.2558**	**8.2558**	**2.2700e-003**	**0.0000**	**8.3035**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	2.3200e-003	3.0800e-003	1.0000e-005	1.9300e-003	3.0000e-005	1.9600e-003	4.8000e-004	3.0000e-005	5.1000e-004	0.0000	0.6026	0.6026	0.0000	0.0000	0.6027
Vendor	2.6000e-004	1.8600e-003	3.5400e-003	1.0000e-005	1.4000e-004	3.0000e-005	1.7000e-004	4.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.4609	0.4609	0.0000	0.0000	0.4609
Worker	5.3000e-004	8.5000e-004	7.9400e-003	2.0000e-005	1.6900e-003	1.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.4182	1.4182	7.0000e-005	0.0000	1.4197
Total	**1.0100e-003**	**5.0300e-003**	**0.0146**	**4.0000e-005**	**3.7600e-003**	**7.0000e-005**	**3.8400e-003**	**9.7000e-004**	**6.0000e-005**	**1.0400e-003**	**0.0000**	**2.4817**	**2.4817**	**7.0000e-005**	**0.0000**	**2.4834**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.9200e-003	0.0839	0.0600	9.0000e-005		5.3200e-003	5.3200e-003		4.9500e-003	4.9500e-003	0.0000	8.2558	8.2558	2.2700e-003	0.0000	8.3035
Total	**8.9200e-003**	**0.0839**	**0.0600**	**9.0000e-005**		**5.3200e-003**	**5.3200e-003**		**4.9500e-003**	**4.9500e-003**	**0.0000**	**8.2558**	**8.2558**	**2.2700e-003**	**0.0000**	**8.3035**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	2.3200e-003	3.0800e-003	1.0000e-005	1.9300e-003	3.0000e-005	1.9600e-003	4.8000e-004	3.0000e-005	5.1000e-004	0.0000	0.6026	0.6026	0.0000	0.0000	0.6027
Vendor	2.6000e-004	1.8600e-003	3.5400e-003	1.0000e-005	1.4000e-004	3.0000e-005	1.7000e-004	4.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.4609	0.4609	0.0000	0.0000	0.4609
Worker	5.3000e-004	8.5000e-004	7.9400e-003	2.0000e-005	1.6900e-003	1.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.4182	1.4182	7.0000e-005	0.0000	1.4197
Total	**1.0100e-003**	**5.0300e-003**	**0.0146**	**4.0000e-005**	**3.7600e-003**	**7.0000e-005**	**3.8400e-003**	**9.7000e-004**	**6.0000e-005**	**1.0400e-003**	**0.0000**	**2.4817**	**2.4817**	**7.0000e-005**	**0.0000**	**2.4834**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.1100e-003	0.0404	0.0333	5.0000e-005		2.4200e-003	2.4200e-003		2.2300e-003	2.2300e-003	0.0000	4.4381	4.4381	1.3100e-003	0.0000	4.4657
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.1100e-003**	**0.0404**	**0.0333**	**5.0000e-005**		**2.4200e-003**	**2.4200e-003**		**2.2300e-003**	**2.2300e-003**	**0.0000**	**4.4381**	**4.4381**	**1.3100e-003**	**0.0000**	**4.4657**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3000e-004	2.4700e-003	3.2900e-003	1.0000e-005	1.7000e-004	3.0000e-005	2.0000e-004	5.0000e-005	3.0000e-005	8.0000e-005	0.0000	0.6428	0.6428	0.0000	0.0000	0.6429
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	1.8000e-004	2.9000e-004	2.7500e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4917	0.4917	2.0000e-005	0.0000	0.4922
Total	**4.1000e-004**	**2.7600e-003**	**6.0400e-003**	**2.0000e-005**	**7.6000e-004**	**3.0000e-005**	**7.9000e-004**	**2.1000e-004**	**3.0000e-005**	**2.4000e-004**	**0.0000**	**1.1345**	**1.1345**	**2.0000e-005**	**0.0000**	**1.1351**

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	4.1100e-003	0.0404	0.0333	5.0000e-005		2.4200e-003	2.4200e-003		2.2300e-003	2.2300e-003	0.0000	4.4381	4.4381	1.3100e-003	0.0000	4.4656
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.1100e-003**	**0.0404**	**0.0333**	**5.0000e-005**		**2.4200e-003**	**2.4200e-003**		**2.2300e-003**	**2.2300e-003**	**0.0000**	**4.4381**	**4.4381**	**1.3100e-003**	**0.0000**	**4.4656**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3000e-004	2.4700e-003	3.2900e-003	1.0000e-005	1.7000e-004	3.0000e-005	2.0000e-004	5.0000e-005	3.0000e-005	8.0000e-005	0.0000	0.6428	0.6428	0.0000	0.0000	0.6429
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	1.8000e-004	2.9000e-004	2.7500e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4917	0.4917	2.0000e-005	0.0000	0.4922
Total	**4.1000e-004**	**2.7600e-003**	**6.0400e-003**	**2.0000e-005**	**7.6000e-004**	**3.0000e-005**	**7.9000e-004**	**2.1000e-004**	**3.0000e-005**	**2.4000e-004**	**0.0000**	**1.1345**	**1.1345**	**2.0000e-005**	**0.0000**	**1.1351**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2972					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4900e-003	0.0100	9.2700e-003	1.0000e-005		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	1.2766	1.2766	1.2000e-004	0.0000	1.2792
Total	**0.2987**	**0.0100**	**9.2700e-003**	**1.0000e-005**		**7.5000e-004**	**7.5000e-004**		**7.5000e-004**	**7.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.2000e-004**	**0.0000**	**1.2792**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	9.0000e-005	8.5000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1513	0.1513	1.0000e-005	0.0000	0.1514
Total	**6.0000e-005**	**9.0000e-005**	**8.5000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1513**	**0.1513**	**1.0000e-005**	**0.0000**	**0.1514**

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	0.2972					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4900e-003	0.0100	9.2700e-003	1.0000e-005		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	1.2766	1.2766	1.2000e-004	0.0000	1.2792
Total	**0.2987**	**0.0100**	**9.2700e-003**	**1.0000e-005**		**7.5000e-004**	**7.5000e-004**		**7.5000e-004**	**7.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.2000e-004**	**0.0000**	**1.2792**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	9.0000e-005	8.5000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1513	0.1513	1.0000e-005	0.0000	0.1514
Total	**6.0000e-005**	**9.0000e-005**	**8.5000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1513**	**0.1513**	**1.0000e-005**	**0.0000**	**0.1514**

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	0.1079	0.2095	1.1017	2.3200e-003	0.1750	2.8300e-003	0.1779	0.0470	2.6100e-003	0.0496	0.0000	177.2944	177.2944	7.7700e-003	0.0000	177.4577
Unmitigated	0.1079	0.2095	1.1017	2.3200e-003	0.1750	2.8300e-003	0.1779	0.0470	2.6100e-003	0.0496	0.0000	177.2944	177.2944	7.7700e-003	0.0000	177.4577

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	191.11	207.64	176.03	451,287	451,287
Single Family Housing	9.57	10.08	8.77	22,476	22,476
Total	200.68	217.72	184.80	473,763	473,763

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	13.90	4.30	5.40	26.10	29.10	44.80	86	11	3
Single Family Housing	13.90	4.30	5.40	26.10	29.10	44.80	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.579131	0.062714	0.176356	0.114004	0.029626	0.004163	0.015785	0.004086	0.002626	0.003692	0.006605	0.000229	0.000983

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	32.5237	32.5237	1.4700e-003	3.0000e-004	32.6489
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	32.5237	32.5237	1.4700e-003	3.0000e-004	32.6489
NaturalGas Mitigated	1.6600e-003	0.0142	6.0300e-003	9.0000e-005		1.1500e-003	1.1500e-003		1.1500e-003	1.1500e-003	0.0000	16.4241	16.4241	3.1000e-004	3.0000e-004	16.5241
NaturalGas Unmitigated	1.6600e-003	0.0142	6.0300e-003	9.0000e-005		1.1500e-003	1.1500e-003		1.1500e-003	1.1500e-003	0.0000	16.4241	16.4241	3.1000e-004	3.0000e-004	16.5241

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	51020	2.8000e-004	2.3500e-003	1.0000e-003	2.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.7226	2.7226	5.0000e-005	5.0000e-005	2.7392
Apartments Mid Rise	256756	1.3800e-003	0.0118	5.0300e-003	8.0000e-005		9.6000e-004	9.6000e-004		9.6000e-004	9.6000e-004	0.0000	13.7015	13.7015	2.6000e-004	2.5000e-004	13.7849
Total		**1.6600e-003**	**0.0142**	**6.0300e-003**	**1.0000e-004**		**1.1500e-003**	**1.1500e-003**		**1.1500e-003**	**1.1500e-003**	**0.0000**	**16.4241**	**16.4241**	**3.1000e-004**	**3.0000e-004**	**16.5241**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	51020	2.8000e-004	2.3500e-003	1.0000e-003	2.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.7226	2.7226	5.0000e-005	5.0000e-005	2.7392
Apartments Mid Rise	256756	1.3800e-003	0.0118	5.0300e-003	8.0000e-005		9.6000e-004	9.6000e-004		9.6000e-004	9.6000e-004	0.0000	13.7015	13.7015	2.6000e-004	2.5000e-004	13.7849
Total		**1.6600e-003**	**0.0142**	**6.0300e-003**	**1.0000e-004**		**1.1500e-003**	**1.1500e-003**		**1.1500e-003**	**1.1500e-003**	**0.0000**	**16.4241**	**16.4241**	**3.1000e-004**	**3.0000e-004**	**16.5241**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	104845	30.5007	1.3800e-003	2.9000e-004	30.6181
Single Family Housing	6953.97	2.0230	9.0000e-005	2.0000e-005	2.0308
Total		**32.5237**	**1.4700e-003**	**3.1000e-004**	**32.6489**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	104845	30.5007	1.3800e-003	2.9000e-004	30.6181
Single Family Housing	6953.97	2.0230	9.0000e-005	2.0000e-005	2.0308
Total		**32.5237**	**1.4700e-003**	**3.1000e-004**	**32.6489**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.2016	2.6200e-003	0.2250	1.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	0.3639	0.3639	3.7000e-004	0.0000	0.3715
Unmitigated	0.2016	2.6200e-003	0.2250	1.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	0.3639	0.3639	3.7000e-004	0.0000	0.3715

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	0.0297					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1649					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0100e-003	2.6200e-003	0.2250	1.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	0.3639	0.3639	3.7000e-004	0.0000	0.3715
Total	**0.2016**	**2.6200e-003**	**0.2250**	**1.0000e-005**		**1.2200e-003**	**1.2200e-003**		**1.2200e-003**	**1.2200e-003**	**0.0000**	**0.3639**	**0.3639**	**3.7000e-004**	**0.0000**	**0.3715**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0297					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1649					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0100e-003	2.6200e-003	0.2250	1.0000e-005		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	0.3639	0.3639	3.7000e-004	0.0000	0.3715
Total	**0.2016**	**2.6200e-003**	**0.2250**	**1.0000e-005**		**1.2200e-003**	**1.2200e-003**		**1.2200e-003**	**1.2200e-003**	**0.0000**	**0.3639**	**0.3639**	**3.7000e-004**	**0.0000**	**0.3715**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.9516	0.0639	1.5400e-003	6.7710
Unmitigated	4.9516	0.0639	1.5400e-003	6.7720

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.88947 / 1.19119	4.7866	0.0618	1.4900e-003	6.5463
Single Family Housing	0.065154 / 0.0410754	0.1651	2.1300e-003	5.0000e-005	0.2257
Total		**4.9516**	**0.0639**	**1.5400e-003**	**6.7720**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.88947 / 1.19119	4.7866	0.0618	1.4900e-003	6.5453
Single Family Housing	0.065154 / 0.0410754	0.1651	2.1300e-003	5.0000e-005	0.2257
Total		**4.9516**	**0.0639**	**1.5400e-003**	**6.7710**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.0489	0.1802	0.0000	6.8328
Unmitigated	3.0489	0.1802	0.0000	6.8328

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	13.34	2.7079	0.1600	0.0000	6.0686
Single Family Housing	1.68	0.3410	0.0202	0.0000	0.7643
Total		**3.0489**	**0.1802**	**0.0000**	**6.8328**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	13.34	2.7079	0.1600	0.0000	6.0686
Single Family Housing	1.68	0.3410	0.0202	0.0000	0.7643
Total		**3.0489**	**0.1802**	**0.0000**	**6.8328**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	3.5520	0.0000	0.0000	3.5520

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Hardwood Maple	2	2.0840	0.0000	0.0000	2.0840
Mixed Hardwood	2	1.4680	0.0000	0.0000	1.4680
Total		**3.5520**	**0.0000**	**0.0000**	**3.5520**