Appendix A:
Air Quality and Greenhouse Gas Emissions Assessment

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THE OAKS AT FOSS CREEK SINGLE-FAMILY RESIDENTIAL AIR QUALITY AND GREENHOUSE GAS EMISSIONS ASSESSMENT

Healdsburg, California

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Project: 16-050

Introduction

The purpose of this report is to address air quality and greenhouse gas (GHG) emissions associated with the proposed development consisting of single-family residential units and associated parking at 111, 155, and 157 Chiquita Road in Healdsburg, CA. We understand that the proposed project would involve the construction of 35 single-family homes, 6 duet units and 100 parking spaces inclusive of the garages attached to each residential unit and additional parking spaces. Air quality and GHG emissions could occur due to temporary construction emissions and as a result of direct and indirect operational emissions from new residences. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).

Setting

Air Pollutants of Concern

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NOx). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ozone levels. The highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Greenhouse Gases

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 (CO_2) 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:

- CO_2 and N_2O are byproducts of fossil fuel combustion.
- N_2O is associated with agricultural operations such as fertilization of crops.
- CH_4 is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.

- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs 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 CO_2 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 CO_2 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.

Significance Thresholds

The project is located in the North Coast Air Basin. The Northern Sonoma County Air Pollution District regulates air emissions in this part of the basin. However, the Air District relies on the BAAQMD's CEQA Air Quality Guidelines to assess air quality and GHG emissions from land use projects. In June 2010, 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 BAAQMD's website and included in the Air District's updated CEQA Guidelines (updated May 2011). The significance thresholds identified by BAAQMD and used in this analysis are summarized in Table 1.

The BAAQMD's adoption of significance thresholds contained in the 2011 CEQA Air Quality Guidelines was called into question by an order issued March 5, 2012, in California Building Industry Association (CBIA) v. BAAQMD (Alameda Superior Court Case No. RGI0548693). The order requires 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. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds (Cal. Court of Appeal, First Appellate District, Case Nos. A135335 & A136212). CBIA sought review by the California Supreme Court on three issues, including the appellate court's decision to uphold the BAAQMD's adoption of the thresholds, and the Court granted review on just one: Under what circumstances, if any, does CEQA require an analysis of

how existing environmental conditions will impact future residents or users of a proposed project? In December 2015, the Supreme Court determined that an analysis of the impacts of the environment on a project – known as "CEQA-in-reverse" – is only required under two limited circumstances: (1) when a statute provides an express legislative directive to consider such impacts; and (2) when a proposed project risks exacerbating environmental hazards or conditions that already exist (Cal. Supreme Court Case No. S213478). The Supreme Court reversed the Court of Appeal's decision and remanded the matter back to the appellate court to reconsider the case in light of the Supreme Court's ruling. Accordingly, the case is currently pending back in the Court of Appeal. Because the Supreme Court's holding concerns the effects of the environment on a project (as contrasted to the effects of a proposed project on the environment), and not the science behind the thresholds, the significance thresholds contained in the 2011 CEQA Air Quality Guidelines are applied to this project.

Table 1. Air Quality Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Greenhouse Gas Emissions			
GHG Annual Emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons or 4.6 metric tons per capita		

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less; and GHG = greenhouse gas.

Air Quality and GHG Emissions

Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The Bay Area is considered a non-attainment area for ground-level ozone and $PM_{2.5}$ under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM_{10} under the California Clean Air Act, but not the federal act. The area has attained both State and federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for ozone precursor pollutants (ROG and NOx), PM_{10}, and $PM_{2.5}$ and apply to both construction period and operational period impacts.

Due to the project size, construction and operational-period emissions would be less than significant. In the 2011 update to the CEQA Air Quality Guidelines, BAAQMD identifies screening criteria for the sizes of land use projects that could result in significant air pollutant emissions. For operational impacts, the screening project size is identified at 325 dwelling units. For construction impacts, the screening project size is identified at 114 dwelling units. Single-family housing projects of smaller size would be expected to have less-than-significant impacts with respect to construction and operational-period emissions. Since the project proposes to develop 41 dwelling units, it is concluded that emissions would be below the BAAQMD screening sizes for both the construction and operational period. Stationary sources of air pollution (e.g., back-up generators) have not been identified with this project.

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if best management practices are implemented to reduce these emissions. BAAQMD BMPs are listed below:

> During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less than significant level. The contractor shall implement the following best management practices that are required of all projects:
>
> 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. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines.

<u>Methodology</u>

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to predict GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size 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 Sonoma 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 output worksheets are included in *Attachment 1* for annual emissions. The proposed project land uses were input into CalEEMod, which included 41 dwelling units entered as ”Single Family Housing,” 70 spaces entered as “Enclosed Parking Structure,” and 30 spaces entered as “Parking Lot.”

Trip Generation Rates

CalEEMod default trip rates associated with each land use were used.

Model Year

The model uses mobile emission factors from the California Air Resources Board’s EMFAC2011 model. 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. The year 2018 was analyzed, since it is the first full year that the built-out project could begin operations.

Energy

CalEEMod has a default rate of 641.3 pounds of CO_2 per megawatt of electricity produced, which is based on PG&E’s 2008 emissions rate. The PG&E rate was updated to be the most recent rate reported in the California Climate Registry that was for 2013, which is 429.6 pounds of CO_2 per megawatt of electricity produced.[1]

The 2013 Title 24 Building Standards became effective July 1, 2014 and are predicted to use 25 percent less energy for lighting, heating, cooling, ventilation, and water heating for residential uses and 30 percent less for non-residential uses than the 2008 standards that CalEEMod incorporates.[2] Therefore, the CalEEMod project run was adjusted to account for the greater energy efficiency.

Other Inputs

Default model assumptions for GHG emissions associated with area sources, solid waste generation and water/wastewater use were applied to the project.

<u>Construction Emissions</u>

GHG emissions associated with construction were computed to be 410 MT of CO_2e for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an

[1] See Climate Registry most current version of default emissions factors: http://www.theclimateregistry.org/tools-resources/reporting-protocols/general-reporting-protocol. Accessed: May 11, 2016.
[2] California Energy Commission, 2014. *New Title 24 Standards Will Cut Residential Energy Use by 25 Percent, Save Water, and Reduce Greenhouse Gas Emissions*. July. Available online: http://www.energy.ca.gov/releases/2014_releases/2014-07-01_new_title24_standards_nr.html

adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable. Best management practices assumed to be incorporated into construction of the proposed project include, but are not limited to: using local building materials of at least 10 percent and recycling or reusing at least 50 percent of construction waste or demolition materials.

Operational Emissions

The CalEEMod model was used to predict daily emissions associated with operation of the fully-developed site under the proposed project. In 2018, as shown in Table 1, annual emissions resulting from operation of the proposed project are predicted to be 764 MT of CO_2e. These emissions would not exceed the BAAQMD threshold of 1,100 MT of CO_2e/yr.

Table 1. Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	**2018 Project Emissions**
Area	62
Energy Consumption	142
Mobile	531
Solid Waste Generation	22
Water Usage	7
Total	764
BAAQMD Threshold	1,100 MT CO_2e/year

Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

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, the California Public Utilities Commission (CPUC), and the 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 BAU emissions projected in 2020 back down to 1990 levels. 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 MMT of CO_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.

The proposed project would not conflict or otherwise interfere with the statewide GHG reduction measures identified in CARB's Scoping Plan. The project would comply with requirements of the Green Building Code. For example, proposed buildings would be constructed in conformance with CALGreen and the Title 24 Building Code, which requires high-efficiency water fixtures and water-efficient irrigation systems.

Summary

Implementation of the proposed would result in emissions of criteria air pollutants and GHGs. However, the proposed project size is below both the BAAQMD construction and operational period screening sizes for potentially significant air quality impacts. In addition, CalEEMod modeling of the proposed project indicates that GHG emissions resulting from the project would be below the BAAQMD significance threshold.

Attachment 1: CalEEMod Input and Output Worksheets

Oaks at Foss Creek, GHG, Healdsburg, CA

Sonoma-North Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	41.00	Dwelling Unit	4.32	49,869.00	117
Parking Lot	30.00	Space	0.00	12,000.00	0
Enclosed Parking Structure	70.00	Space	0.00	28,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	75
Climate Zone	4			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	429.6	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Revised Carbon Dioxide Emission Intensity

Land Use - From Site Plan

Energy Use - 30% reduction in title 24 values for non residential uses and 25% reduction in title 24 values for residential uses

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	0.88	0.62
tblEnergyUse	LightingElect	1,608.84	1,206.63
tblEnergyUse	LightingElect	2.63	1.97
tblEnergyUse	T24E	368.61	276.46
tblEnergyUse	T24E	3.92	2.74

tblEnergyUse	T24NG	29,406.10	22,054.60
tblLandUse	LandUseSquareFeet	73,800.00	49,869.00
tblLandUse	LotAcreage	13.31	4.32
tblLandUse	LotAcreage	0.27	0.00
tblLandUse	LotAcreage	0.63	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	429.6
tblProjectCharacteristics	OperationalYear	2014	2018

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	0.4652	3.8563	3.1639	4.3700e-003	0.1098	0.2408	0.3506	0.0487	0.2257	0.2743	0.0000	385.0083	385.0083	0.0857	0.0000	386.8089
2018	1.1299	0.1856	0.1766	2.7000e-004	2.3200e-003	0.0111	0.0134	6.2000e-004	0.0104	0.0110	0.0000	23.3903	23.3903	5.8100e-003	0.0000	23.5124
Total	**1.5951**	**4.0419**	**3.3405**	**4.6400e-003**	**0.1121**	**0.2519**	**0.3640**	**0.0493**	**0.2361**	**0.2853**	**0.0000**	**408.3987**	**408.3987**	**0.0916**	**0.0000**	**410.3212**

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	3.0440	0.0385	3.4767	1.2500e-003		0.4469	0.4469		0.4469	0.4469	42.3513	18.2606	60.6118	0.0396	3.3300e-003	62.4757
Energy	6.1800e-003	0.0528	0.0225	3.4000e-004		4.2700e-003	4.2700e-003		4.2700e-003	4.2700e-003	0.0000	140.8189	140.8189	6.5500e-003	2.2300e-003	141.6489
Mobile	0.4674	1.0926	4.8713	7.0300e-003	0.4138	0.0132	0.4270	0.1110	0.0121	0.1231	0.0000	529.7996	529.7996	0.0310	0.0000	530.4495
Waste						0.0000	0.0000		0.0000	0.0000	9.9750	0.0000	9.9750	0.5895	0.0000	22.3546
Water						0.0000	0.0000		0.0000	0.0000	0.8475	3.9652	4.8127	0.0873	2.1100e-003	7.3006
Total	**3.5176**	**1.1839**	**8.3704**	**8.6200e-003**	**0.4138**	**0.4643**	**0.8782**	**0.1110**	**0.4633**	**0.5743**	**53.1737**	**692.8443**	**746.0181**	**0.7539**	**7.6700e-003**	**764.2293**

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	1/27/2017	5	20	
2	Site Preparation	Site Preparation	1/28/2017	2/3/2017	5	5	
3	Grading	Grading	2/4/2017	2/15/2017	5	8	
4	Building Construction	Building Construction	2/16/2017	1/3/2018	5	230	
5	Paving	Paving	1/4/2018	1/29/2018	5	18	
6	Architectural Coating	Architectural Coating	1/30/2018	2/22/2018	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 100,985; Residential Outdoor: 33,662; Non-Residential Indoor: 42,540; Non-Residential Outdoor: 14,180 (Architectural

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	Excavators	3	8.00	162	0.38

Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	2	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	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	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	32.00	11.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					
Off-Road	0.0405	0.4270	0.3389	4.0000e-004		0.0213	0.0213		0.0198	0.0198	0.0000	36.6182	36.6182	0.0101	0.0000	36.8292
Total	**0.0405**	**0.4270**	**0.3389**	**4.0000e-004**		**0.0213**	**0.0213**		**0.0198**	**0.0198**	**0.0000**	**36.6182**	**36.6182**	**0.0101**	**0.0000**	**36.8292**

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	9.5000e-004	1.3300e-003	0.0121	2.0000e-005	1.1800e-003	2.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.3000e-004	0.0000	1.1830	1.1830	9.0000e-005	0.0000	1.1849
Total	**9.5000e-004**	**1.3300e-003**	**0.0121**	**2.0000e-005**	**1.1800e-003**	**2.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1830**	**1.1830**	**9.0000e-005**	**0.0000**	**1.1849**

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.1294	0.0985	1.0000e-004		6.8900e-003	6.8900e-003		6.3300e-003	6.3300e-003	0.0000	9.0789	9.0789	2.7800e-003	0.0000	9.1373
Total	**0.0121**	**0.1294**	**0.0985**	**1.0000e-004**	**0.0452**	**6.8900e-003**	**0.0521**	**0.0248**	**6.3300e-003**	**0.0312**	**0.0000**	**9.0789**	**9.0789**	**2.7800e-003**	**0.0000**	**9.1373**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9000e-004	4.0000e-004	3.6300e-003	0.0000	3.5000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3549	0.3549	3.0000e-005	0.0000	0.3555
Total	**2.9000e-004**	**4.0000e-004**	**3.6300e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3549**	**0.3549**	**3.0000e-005**	**0.0000**	**0.3555**

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.0138	0.1439	0.1015	1.2000e-004		8.1600e-003	8.1600e-003		7.5000e-003	7.5000e-003	0.0000	11.0447	11.0447	3.3800e-003	0.0000	11.1157
Total	**0.0138**	**0.1439**	**0.1015**	**1.2000e-004**	**0.0262**	**8.1600e-003**	**0.0344**	**0.0135**	**7.5000e-003**	**0.0210**	**0.0000**	**11.0447**	**11.0447**	**3.3800e-003**	**0.0000**	**11.1157**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	5.3000e-004	4.8400e-003	1.0000e-005	4.7000e-004	1.0000e-005	4.8000e-004	1.3000e-004	1.0000e-005	1.3000e-004	0.0000	0.4732	0.4732	4.0000e-005	0.0000	0.4740
Total	**3.8000e-004**	**5.3000e-004**	**4.8400e-003**	**1.0000e-005**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**1.3000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**0.4732**	**0.4732**	**4.0000e-005**	**0.0000**	**0.4740**

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	0.3521	2.9970	2.0577	3.0400e-003		0.2022	0.2022		0.1899	0.1899	0.0000	271.8088	271.8088	0.0669	0.0000	273.2136
Total	**0.3521**	**2.9970**	**2.0577**	**3.0400e-003**		**0.2022**	**0.2022**		**0.1899**	**0.1899**	**0.0000**	**271.8088**	**271.8088**	**0.0669**	**0.0000**	**273.2136**

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	0.0220	0.1245	0.2539	2.9000e-004	7.8700e-003	1.9500e-003	9.8200e-003	2.2400e-003	1.7900e-003	4.0400e-003	0.0000	25.8034	25.8034	2.2000e-004	0.0000	25.8079
Worker	0.0231	0.0322	0.2928	3.9000e-004	0.0285	3.7000e-004	0.0289	7.5900e-003	3.4000e-004	7.9300e-003	0.0000	28.6434	28.6434	2.2600e-003	0.0000	28.6908
Total	**0.0450**	**0.1567**	**0.5468**	**6.8000e-004**	**0.0364**	**2.3200e-003**	**0.0387**	**9.8300e-003**	**2.1300e-003**	**0.0120**	**0.0000**	**54.4468**	**54.4468**	**2.4800e-003**	**0.0000**	**54.4987**

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	4.0000e-003	0.0349	0.0263	4.0000e-005		2.2400e-003	2.2400e-003		2.1100e-003	2.1100e-003	0.0000	3.5516	3.5516	8.7000e-004	0.0000	3.5698
Total	**4.0000e-003**	**0.0349**	**0.0263**	**4.0000e-005**		**2.2400e-003**	**2.2400e-003**		**2.1100e-003**	**2.1100e-003**	**0.0000**	**3.5516**	**3.5516**	**8.7000e-004**	**0.0000**	**3.5698**

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	2.5000e-004	1.5200e-003	3.0600e-003	0.0000	1.0000e-004	2.0000e-005	1.3000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.3351	0.3351	0.0000	0.0000	0.3351
Worker	2.7000e-004	3.8000e-004	3.4300e-003	1.0000e-005	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3645	0.3645	3.0000e-005	0.0000	0.3651
Total	**5.2000e-004**	**1.9000e-003**	**6.4900e-003**	**1.0000e-005**	**4.8000e-004**	**2.0000e-005**	**5.1000e-004**	**1.3000e-004**	**2.0000e-005**	**1.5000e-004**	**0.0000**	**0.6996**	**0.6996**	**3.0000e-005**	**0.0000**	**0.7003**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0127	0.1289	0.1104	1.7000e-004		7.4500e-003	7.4500e-003		6.8700e-003	6.8700e-003	0.0000	15.0641	15.0641	4.5600e-003	0.0000	15.1599
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0127**	**0.1289**	**0.1104**	**1.7000e-004**		**7.4500e-003**	**7.4500e-003**		**6.8700e-003**	**6.8700e-003**	**0.0000**	**15.0641**	**15.0641**	**4.5600e-003**	**0.0000**	**15.1599**

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	1.0100e-003	1.4300e-003	0.0129	2.0000e-005	1.4100e-003	2.0000e-005	1.4300e-003	3.8000e-004	2.0000e-005	3.9000e-004	0.0000	1.3670	1.3670	1.0000e-004	0.0000	1.3692
Total	**1.0100e-003**	**1.4300e-003**	**0.0129**	**2.0000e-005**	**1.4100e-003**	**2.0000e-005**	**1.4300e-003**	**3.8000e-004**	**2.0000e-005**	**3.9000e-004**	**0.0000**	**1.3670**	**1.3670**	**1.0000e-004**	**0.0000**	**1.3692**

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	1.1087					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6900e-003	0.0181	0.0167	3.0000e-005		1.3500e-003	1.3500e-003		1.3500e-003	1.3500e-003	0.0000	2.2979	2.2979	2.2000e-004	0.0000	2.3025
Total	**1.1114**	**0.0181**	**0.0167**	**3.0000e-005**		**1.3500e-003**	**1.3500e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**2.2979**	**2.2979**	**2.2000e-004**	**0.0000**	**2.3025**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	4.3000e-004	3.8600e-003	1.0000e-005	4.2000e-004	1.0000e-005	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.4101	0.4101	3.0000e-005	0.0000	0.4108
Total	**3.0000e-004**	**4.3000e-004**	**3.8600e-003**	**1.0000e-005**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.1000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.4101**	**0.4101**	**3.0000e-005**	**0.0000**	**0.4108**

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					
Unmitigated	0.4674	1.0926	4.8713	7.0300e-003	0.4138	0.0132	0.4270	0.1110	0.0121	0.1231	0.0000	529.7996	529.7996	0.0310	0.0000	530.4495

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Single Family Housing	392.37	413.28	359.57	1,120,723	1,120,723
Enclosed Parking Structure	0.00	0.00	0.00		
Total	392.37	413.28	359.57	1,120,723	1,120,723

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
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	10.80	7.30	7.50	42.90	19.50	37.60	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
0.412177	0.112523	0.159237	0.157853	0.077974	0.009612	0.025172	0.031274	0.001137	0.000213	0.008341	0.000681	0.003807

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	79.7072	79.7072	5.3800e-003	1.1100e-003	80.1653
NaturalGas Unmitigated	6.1800e-003	0.0528	0.0225	3.4000e-004		4.2700e-003	4.2700e-003		4.2700e-003	4.2700e-003	0.0000	61.1117	61.1117	1.1700e-003	1.1200e-003	61.4836

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					
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
Parking Lot	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
Single Family Housing	1.14519e+006	6.1800e-003	0.0528	0.0225	3.4000e-004		4.2700e-003	4.2700e-003		4.2700e-003	4.2700e-003	0.0000	61.1117	61.1117	1.1700e-003	1.1200e-003	61.4836
Total		**6.1800e-003**	**0.0528**	**0.0225**	**3.4000e-004**		**4.2700e-003**	**4.2700e-003**		**4.2700e-003**	**4.2700e-003**	**0.0000**	**61.1117**	**61.1117**	**1.1700e-003**	**1.1200e-003**	**61.4836**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking Structure	131880	25.6986	1.7300e-003	3.6000e-004	25.8463
Parking Lot	7440	1.4498	1.0000e-004	2.0000e-005	1.4581
Single Family Housing	269722	52.5589	3.5500e-003	7.3000e-004	52.8609
Total		**79.7072**	**5.3800e-003**	**1.1100e-003**	**80.1653**

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					
Unmitigated	3.0440	0.0385	3.4767	1.2500e-003		0.4469	0.4469		0.4469	0.4469	42.3513	18.2606	60.6118	0.0396	3.3300e-003	62.4757

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	0.1109					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3510					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.5726	0.0349	3.1692	1.2400e-003		0.4453	0.4453		0.4452	0.4452	42.3513	17.7615	60.1128	0.0391	3.3300e-003	61.9662
Landscaping	9.5400e-003	3.5700e-003	0.3075	2.0000e-005		1.6800e-003	1.6800e-003		1.6800e-003	1.6800e-003	0.0000	0.4991	0.4991	5.0000e-004	0.0000	0.5095
Total	**3.0440**	**0.0385**	**3.4767**	**1.2600e-003**		**0.4469**	**0.4469**		**0.4469**	**0.4469**	**42.3513**	**18.2606**	**60.6118**	**0.0396**	**3.3300e-003**	**62.4757**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	4.8127	0.0873	2.1100e-003	7.3006

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000

Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.67132 / 1.68409	4.8127	0.0873	2.1100e-003	7.3006
Total		**4.8127**	**0.0873**	**2.1100e-003**	**7.3006**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	9.9750	0.5895	0.0000	22.3546

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	49.14	9.9750	0.5895	0.0000	22.3546

Total		**9.9750**	**0.5895**	**0.0000**	**22.3546**

9.0 Operational Offroad

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

10.0 Vegetation