Appendix F

WATERSTONE RESIDENTIAL PROJECT – GHG EMISSIONS ASSESSMENT MILPITAS, CALIFORNIA

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Project 12-178

Introduction

This report documents the results of a greenhouse gas (GHG) emissions analysis completed for a project that proposes 84 single-family residential units on a 10.7-acre site in Milpitas, California. The project site is currently developed with two vacant one-story industrial buildings totaling 105,100 square feet (sf). The project will include 0.90 acres of open space, including two active open space areas and various passive open space areas. GHG emissions were computed using following guidance provided by the Bay Area Air Quality Management District (BAAQMD)[1].

Setting

Scientists have found that human caused emissions of greenhouse gases (GHG) contribute to global warming. The State of California is addressing this issue through legislation, policy guidance, and outreach programs. Carbon dioxide (CO2) is the primary GHG emitted from land use projects, mostly through automobile and energy use.

BAAQMD investigated GHG emissions-based thresholds on June 2, 2010[2]. These criteria establish a "bright-line" emissions threshold at 1,100 metric tons per year for land-use type projects and 10,000 metric tons per year for stationary sources. Projects with emissions above this threshold would be considered to have an impact, which, cumulatively, would be significant. The project size, 84 single family dwelling units, exceeds the screening size listed by BAAQMD as having less than significant GHG emissions. Therefore, a refined analysis that includes modeling of GHG emissions from the project was conducted.

Project GHG Emissions

Modeling of GHG emissions was conducted to determine whether or not the proposed project would generate GHG emissions that may have a significant impact on the environment. The California Emissions Estimator Model, Version 2011.1.1 (CalEEMod) was used to predict emissions from construction and operation of the site assuming full build out of the project. The project land use type and size, and trip generation rate were input to CalEEMod. Adjustments to the model are described below. Model output are included in Attachment 1. The model provided emissions in metric tons of equivalent CO_2 per year (CO_2e/year).

<u>Land Use Descriptions:</u>
The project land uses were input to CalEEMod, including 84 single-family dwelling units (CalEEMod = "Single Family Housing").

<u>Construction Period Emissions</u>

The CalEEMod model provided annual emissions for construction, which was assumed to occur in 2014 and 2015. CalEEMod provides emission estimates for both on-site construction activities and off-site travel related to construction. A reasonable construction scenario was developed by the applicant and input to the model. The project will require demolition of 105,100 sf of industrial space and removal of pavement throughout the site. The project will require 41,830 cubic yards of fill to be imported to the site. The project is anticipated to be built according to the construction schedule shown below:

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[1] BAAQMD 2011. <u>BAAQMD CEQA Air Quality Guidelines</u>. May.
[2] BAAQMD 2010. BAAQMD CEQA Guidelines Update – Thresholds of Significance. June 2.

1. Demolition of existing buildings for a period of six weeks (i.e., 30 workdays);
2. Site grading for a period of five weeks (i.e., 25 workdays);
3. Additional ground improvement/trenching for a period of four weeks (i.e., 20 workdays);
4. Paving for a period of one week (i.e., 5 workdays);
5. Building construction for a period of 20 months (i.e., 400 workdays).

On-site activities are primarily made up of construction equipment emissions, while off-site activity includes truck hauling and worker traffic. Under this scenario, construction of the project would emit 654 metric tons of CO_2 in 2014 and 575 metric tons in 2015. These would be temporary emissions. Neither the City of Milpitas nor BAAQMD have quantified thresholds for construction activities. However, the emissions would be below the lowest threshold considered by BAAQMD.

Model Year

The Year 2020 was selected, since BAAQMD thresholds are based on meeting the AB32 reduction goals by 2020. Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates CalEEMod uses. The earliest full year the project could possibly be constructed and begin operating would be 2016. Use of this date is considered conservative, as emissions associated with build-out later than 2016 would be lower. The CalEEMod model uses mobile emission factors from the California Air Resources Board's EMFAC2007 model and adjusts these based on the effect of new regulations to reduce GHG emissions. The 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. These regulations include the Pavley Rule that increases fleet fuel efficiency (reducing fuel consumption) and the low carbon fuel standard.

Traffic

CalEEMod predicts daily trip generation for various land use types including residential projects with single-family dwellings. The CalEEMod default trip generation along with the default trip length and vehicle mix was used for this project. No adjustments were made for transit, pedestrian or bicycling modes of travel.

Area Sources

Default CalEEMod rates for energy consumption were assumed in the model. Emissions rates associated with electricity consumption were adjusted to account for Pacific Gas & Electric utility's (PG&E) projected 2016 and 2020 CO_2 intensity rate. These rates are based, in part, on the requirement of a renewable energy portfolio standard of 33 percent by the year 2020. CalEEMod uses a default rate of 641.30 pounds of CO_2 per megawatt of electricity produced. The derived 2016 rate for PG&E was estimated at 370 pounds of CO_2 per megawatt of electricity delivered and is based on the California Public Utilities Commission (CPUC) GHG Calculator. The derived 2020 rate is computed to be 290 pounds of CO_2 per megawatt of electricity delivered.

CalEEMod default emission rates for solid waste generation and water consumption were used in this assessment.

BAAQMD Regulation 6, Rule 3: *Wood-burning Devices* requires that only cleaner burning U.S. EPA certified stoves and inserts are allowed in new construction. For this project, all new fireplaces were assumed to be powered by natural gas. Woodstoves were not assumed to be included in new homes.

Adjustments to CalEEMod were made to account for these conditions.

Per Capita

The per capita rate is the total annual GHG emissions expressed in metric tons divided by the population (i.e., number of residences). Most recent U.S. Census facts indicate there is an average of 3.34 persons per household in Milpitas. This equates to 280 new residents for 84 homes.

Modeling Results

Table 1 presents the results of the CalEEMod model analysis in terms of annual metric tons of equivalent CO_2 emissions (MT of CO_2e/yr). Emissions for the first year of operation, 2016, and 2020 are presented. The significance of these emissions are based on 2020 predictions, since the BAAQMD's threshold was developed to meet the State's (AB 32) goal of reducing CO2e emissions to 1990 levels by 2020. The project's 2020 annual GHG emissions are predicted to be 1,064 MT CO2e/year or 3.8 MT CO2e/year per capita, which is below the BAAQMD significance threshold. The project's operational impact related to GHG emissions would therefore be less than significant. Model output is contained in Attachment 1.

Table 1 GHG Emissions from the Waterston Residential Project, Milpitas

Source Category	**2016 Emissions** (in *MT* $CO_2e/year$)	**2020 Emissions** (in *MT* $CO_2e/year$)
Construction	in 2014 = 654 and in 2015 = 575	
Area	80.31	80.31
Energy	264.31	245.15
Mobile	775.58	674.95
Solid Waste	53.50	53.50
Water	11.93	10.41
Total	1,185.63	**1,064.32**
Per Capita Emissions	4.2	**3.8**
BAAQMD Thresholds		**1,100** *MT* $CO_2e/year$ *or* **4.6** *MT CO2e/year/capita*

ATTACHMENT 1 - CALEEMOD MODEL OUTPUT
2020 Operational
2016 Construction and Operational

CalEEMod Version: CalEEMod.2011.1.1

Date: 1/28/2013

Waterstone, Milpitas

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Single Family Housing	84	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Pacific Gas & Electric Company
Climate Zone	5		2.2		
		Precipitation Freq (Days)			
			58		

1.3 User Entered Comments

Project Characteristics - Used CPUC Calculator for PG&E emissions in 2020

Land Use - Acreage based on project description of 10.7 acres - 0.9 acres parks/open space. Population based on US Census for Milpitas 3.34 persons/hh

Construction Phase - Entered approximate construction schedule

Demolition - Estimated 105,100 sf Industrial to be demolished

Grading - Estimated 41,830 to be imported

Woodstoves - Assume no woodstoves and all natural gas fireplaces

Energy Use - Use defaults

Area Mitigation -

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	3.99	0.05	4.71	0.00		0.00	0.58		0.00	0.58	56.45	21.10	77.55	0.07	0.00	80.31
Energy	0.02	0.15	0.06	0.00		0.00	0.01		0.00	0.01	0.00	243.13	243.13	0.01	0.01	245.15
Mobile	0.48	0.77	3.99	0.01	0.88	0.04	0.92	0.01	0.04	0.05	0.00	674.33	674.33	0.03	0.00	674.95
Waste						0.00	0.00		0.00	0.00	23.87	0.00	23.87	1.41	0.00	53.50
Water						0.00	0.00		0.00	0.00	0.00	5.55	5.55	0.17	0.00	10.41
Total	**4.49**	**0.97**	**8.76**	**0.01**	**0.88**	**0.04**	**1.51**	**0.01**	**0.04**	**0.64**	**80.32**	**944.11**	**1,024.43**	**1.69**	**0.01**	**1,064.32**

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	0.85	0.01	0.63	0.00		0.00	0.01		0.00	0.01	0.00	60.47	60.47	0.00	0.00	60.85
Energy	0.02	0.14	0.06	0.00		0.00	0.01		0.00	0.01	0.00	224.80	224.80	0.01	0.01	226.68
Mobile	0.48	0.77	3.99	0.01	0.88	0.04	0.92	0.01	0.04	0.05	0.00	674.33	674.33	0.03	0.00	674.95
Waste						0.00	0.00		0.00	0.00	23.87	0.00	23.87	1.41	0.00	53.50
Water						0.00	0.00		0.00	0.00	0.00	4.99	4.99	0.15	0.00	9.37
Total	**1.35**	**0.92**	**4.68**	**0.01**	**0.88**	**0.04**	**0.94**	**0.01**	**0.04**	**0.07**	**23.87**	**964.59**	**988.46**	**1.60**	**0.01**	**1,025.35**

Hauling	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
Vendor	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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.63	0.00	0.00	0.63
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.63**	**0.63**	**0.00**	**0.00**	**0.63**

4.0 Mobile Detail

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	0.48	0.77	3.99	0.01	0.88	0.04	0.92	0.01	0.04	0.05	0.00	674.33	674.33	0.03	0.00	674.95
Unmitigated	0.48	0.77	3.99	0.01	0.88	0.04	0.92	0.01	0.04	0.05	0.00	674.33	674.33	0.03	0.00	674.95
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	803.88	846.72	736.68	1,786,786	1,786,786
Total	803.88	846.72	736.68	1,786,786	1,786,786

4.3 Trip Type Information

	Miles			Trip %		
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
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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						0.00	0.00		0.00	0.00	0.00	65.81	65.81	0.01	0.00	66.72
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	69.44	69.44	0.01	0.00	70.41
NaturalGas Mitigated	0.02	0.14	0.06	0.00		0.00	0.01		0.00	0.01	0.00	158.99	158.99	0.00	0.00	159.95
NaturalGas Unmitigated	0.02	0.15	0.06	0.00		0.00	0.01		0.00	0.01	0.00	173.69	173.69	0.00	0.00	174.75

Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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	tons/yr										MT/yr					
Single Family Housing	3.25484e+006	0.02	0.15	0.06	0.00		0.00	0.01		0.00	0.01	0.00	173.69	173.69	0.00	0.00	####
Total		**0.02**	**0.15**	**0.06**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**173.69**	**173.69**	**0.00**	**0.00**	**174.75**

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	tons/yr										MT/yr					
Single Family Housing	2.97931e+006	0.02	0.14	0.06	0.00		0.00	0.01		0.00	0.01	0.00	158.99	158.99	0.00	0.00	####
Total		**0.02**	**0.14**	**0.06**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**158.99**	**158.99**	**0.00**	**0.00**	**159.95**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Single Family Housing	527922					69.44	0.01	0.00	70.41

Total						**69.44**	**0.01**	**0.00**	**70.41**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Single Family Housing	500310					65.81	0.01	0.00	66.72
Total						**65.81**	**0.01**	**0.00**	**66.72**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.85	0.01	0.63	0.00		0.00	0.01		0.00	0.01	0.00	60.47	60.47	0.00	0.00	60.85
Unmitigated	3.99	0.05	4.71	0.00		0.00	0.58		0.00	0.58	56.45	21.10	77.55	0.07	0.00	80.31
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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	0.24					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.59					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	3.14	0.05	4.08	0.00		0.00	0.58		0.00	0.58	56.45	20.07	76.52	0.07	0.00	79.26
Landscaping	0.02	0.01	0.63	0.00		0.00	0.00		0.00	0.00	0.00	1.03	1.03	0.00	0.00	1.05
Total	**3.99**	**0.06**	**4.71**	**0.00**		**0.00**	**0.58**		**0.00**	**0.58**	**56.45**	**21.10**	**77.55**	**0.07**	**0.00**	**80.31**

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	0.24					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.59					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.01	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	59.44	59.44	0.00	0.00	59.80
Landscaping	0.02	0.01	0.63	0.00		0.00	0.00		0.00	0.00	0.00	1.03	1.03	0.00	0.00	1.05
Total	**0.86**	**0.01**	**0.63**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**60.47**	**60.47**	**0.00**	**0.00**	**60.85**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					4.99	0.15	0.00	9.37
Unmitigated					5.55	0.17	0.00	10.41
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Single Family Housing	5.47294 / 3.45033					5.55	0.17	0.00	10.41
Total						**5.55**	**0.17**	**0.00**	**10.41**

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Single Family Housing	4.92564 / 3.1053					4.99	0.15	0.00	9.37
Total						**4.99**	**0.15**	**0.00**	**9.37**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					23.87	1.41	0.00	53.50
Unmitigated					23.87	1.41	0.00	53.50
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Single Family Housing	117.6					23.87	1.41	0.00	53.50
Total						**23.87**	**1.41**	**0.00**	**53.50**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Single Family Housing	117.6					23.87	1.41	0.00	53.50
Total						**23.87**	**1.41**	**0.00**	**53.50**

9.0 Vegetation

Waterstone, Milpitas

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Single Family Housing	84	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Pacific Gas & Electric Company
Climate Zone	5		2.2		
		Precipitation Freq (Days)			
			58		

1.3 User Entered Comments

Project Characteristics - Used CPUC Calculator for PG&E emissions in 2015

Land Use - Acreage based on project description of 10.7 acres - 0.9 acres parks/open space. Population based on US Census for Milpitas 3.34 persons/hh

Construction Phase - Entered approximate construction schedule

Demolition - Estimated 105,100 sf Industrial to be demolished

Grading - Estimated 41,830 to be imported

Woodstoves - Assume no woodstoves and all natural gas fireplaces

Energy Use - Use defaults

Area Mitigation -

Energy Mitigation -

Water Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.68	5.16	3.58	0.01	1.37	0.27	1.64	0.11	0.27	0.38	0.00	652.64	652.64	0.05	0.00	653.73
2015	3.00	4.13	3.49	0.01	0.06	0.25	0.31	0.00	0.25	0.26	0.00	561.74	561.74	0.05	0.00	562.82
2016	0.01	0.08	0.08	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	12.52	12.52	0.00	0.00	12.55
Total	**3.69**	**9.37**	**7.15**	**0.02**	**1.43**	**0.52**	**1.96**	**0.11**	**0.52**	**0.64**	**0.00**	**1,226.90**	**1,226.90**	**0.10**	**0.00**	**1,229.10**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.68	5.16	3.58	0.01	0.23	0.27	0.50	0.11	0.27	0.38	0.00	652.64	652.64	0.05	0.00	653.73
2015	3.00	4.13	3.49	0.01	0.00	0.25	0.26	0.00	0.25	0.26	0.00	561.74	561.74	0.05	0.00	562.82
2016	0.01	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.52	12.52	0.00	0.00	12.55
Total	**3.69**	**9.37**	**7.15**	**0.02**	**0.23**	**0.52**	**0.76**	**0.11**	**0.52**	**0.64**	**0.00**	**1,226.90**	**1,226.90**	**0.10**	**0.00**	**1,229.10**

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	3.99	0.05	4.72	0.00		0.00	0.58		0.00	0.58	56.45	21.10	77.55	0.07	0.00	80.31
Energy	0.02	0.15	0.06	0.00		0.00	0.01		0.00	0.01	0.00	262.29	262.29	0.01	0.01	264.31
Mobile	0.61	1.03	5.41	0.01	0.88	0.04	0.92	0.04	0.04	0.08	0.00	774.87	774.87	0.03	0.00	775.58
Waste						0.00	0.00		0.00	0.00	23.87	0.00	23.87	1.41	0.00	53.50
Water						0.00	0.00		0.00	0.00	0.00	7.06	7.06	0.17	0.00	11.93
Total	**4.62**	**1.23**	**10.19**	**0.01**	**0.88**	**0.04**	**1.51**	**0.04**	**0.04**	**0.67**	**80.32**	**1,065.32**	**1,145.64**	**1.69**	**0.01**	**1,185.63**

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	0.85	0.01	0.64	0.00		0.00	0.01		0.00	0.01	0.00	60.47	60.47	0.00	0.00	60.85
Energy	0.02	0.14	0.06	0.00		0.00	0.01		0.00	0.01	0.00	242.95	242.95	0.01	0.01	244.83
Mobile	0.61	1.03	5.41	0.01	0.88	0.04	0.92	0.04	0.04	0.08	0.00	774.87	774.87	0.03	0.00	775.58
Waste						0.00	0.00		0.00	0.00	23.87	0.00	23.87	1.41	0.00	53.50
Water						0.00	0.00		0.00	0.00	0.00	6.35	6.35	0.15	0.00	10.73
Total	**1.48**	**1.18**	**6.11**	**0.01**	**0.88**	**0.04**	**0.94**	**0.04**	**0.04**	**0.10**	**23.87**	**1,084.64**	**1,108.51**	**1.60**	**0.01**	**1,145.49**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.05	0.00	0.05	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.13	0.99	0.62	0.00		0.05	0.05		0.05	0.05	0.00	102.18	102.18	0.01	0.00	102.39
Total	**0.13**	**0.99**	**0.62**	**0.00**	**0.05**	**0.05**	**0.10**	**0.01**	**0.05**	**0.06**	**0.00**	**102.18**	**102.18**	**0.01**	**0.00**	**102.39**

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	0.01	0.10	0.06	0.00	0.14	0.00	0.14	0.00	0.00	0.00	0.00	17.76	17.76	0.00	0.00	17.77
Vendor	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
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26	2.26	0.00	0.00	2.26
Total	**0.01**	**0.10**	**0.08**	**0.00**	**0.14**	**0.00**	**0.14**	**0.00**	**0.00**	**0.00**	**0.00**	**20.02**	**20.02**	**0.00**	**0.00**	**20.03**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.05	0.00	0.05	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.13	0.99	0.62	0.00		0.05	0.05		0.05	0.05	0.00	102.18	102.18	0.01	0.00	102.39
Total	**0.13**	**0.99**	**0.62**	**0.00**	**0.05**	**0.05**	**0.10**	**0.01**	**0.05**	**0.06**	**0.00**	**102.18**	**102.18**	**0.01**	**0.00**	**102.39**

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	0.01	0.10	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.76	17.76	0.00	0.00	17.77
Vendor	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

Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26	2.26	0.00	0.00	2.26
Total	**0.01**	**0.10**	**0.08**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**20.02**	**20.02**	**0.00**	**0.00**	**20.03**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.09	0.00	0.09	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.05	0.37	0.22	0.00		0.02	0.02		0.02	0.02	0.00	36.27	36.27	0.00	0.00	36.35
Total	**0.05**	**0.37**	**0.22**	**0.00**	**0.09**	**0.02**	**0.11**	**0.05**	**0.02**	**0.07**	**0.00**	**36.27**	**36.27**	**0.00**	**0.00**	**36.35**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.90	0.00	0.00	0.90
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.90**	**0.90**	**0.00**	**0.00**	**0.90**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.09	0.00	0.09	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.05	0.37	0.22	0.00		0.02	0.02		0.02	0.02	0.00	36.27	36.27	0.00	0.00	36.35
Total	**0.05**	**0.37**	**0.22**	**0.00**	**0.09**	**0.02**	**0.11**	**0.05**	**0.02**	**0.07**	**0.00**	**36.27**	**36.27**	**0.00**	**0.00**	**36.35**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.90	0.00	0.00	0.90
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.90**	**0.90**	**0.00**	**0.00**	**0.90**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.08	0.00	0.08	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.07	0.57	0.38	0.00		0.03	0.03		0.03	0.03	0.00	59.41	59.41	0.01	0.00	59.53
Total	**0.07**	**0.57**	**0.38**	**0.00**	**0.08**	**0.03**	**0.11**	**0.04**	**0.03**	**0.07**	**0.00**	**59.41**	**59.41**	**0.01**	**0.00**	**59.53**

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	0.08	0.89	0.52	0.00	0.98	0.03	1.01	0.01	0.03	0.03	0.00	153.67	153.67	0.00	0.00	153.75
Vendor	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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	1.88	0.00	0.00	1.88
Total	**0.08**	**0.89**	**0.53**	**0.00**	**0.98**	**0.03**	**1.01**	**0.01**	**0.03**	**0.03**	**0.00**	**155.55**	**155.55**	**0.00**	**0.00**	**155.63**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.08	0.00	0.08	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.07	0.57	0.38	0.00		0.03	0.03		0.03	0.03	0.00	59.41	59.41	0.01	0.00	59.53
Total	**0.07**	**0.57**	**0.38**	**0.00**	**0.08**	**0.03**	**0.11**	**0.04**	**0.03**	**0.07**	**0.00**	**59.41**	**59.41**	**0.01**	**0.00**	**59.53**

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	0.08	0.89	0.52	0.00	0.01	0.03	0.03	0.01	0.03	0.03	0.00	153.67	153.67	0.00	0.00	153.75
Vendor	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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	1.88	0.00	0.00	1.88
Total	**0.08**	**0.89**	**0.53**	**0.00**	**0.01**	**0.03**	**0.03**	**0.01**	**0.03**	**0.03**	**0.00**	**155.55**	**155.55**	**0.00**	**0.00**	**155.63**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.31	2.13	1.54	0.00		0.13	0.13		0.13	0.13	0.00	243.69	243.69	0.03	0.00	244.23
Total	**0.31**	**2.13**	**1.54**	**0.00**		**0.13**	**0.13**		**0.13**	**0.13**	**0.00**	**243.69**	**243.69**	**0.03**	**0.00**	**244.23**

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	0.00	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
Vendor	0.01	0.08	0.06	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	14.61	14.61	0.00	0.00	14.62
Worker	0.02	0.01	0.15	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.00	20.01	20.01	0.00	0.00	20.04
Total	**0.03**	**0.09**	**0.21**	**0.00**	**0.02**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**34.62**	**34.62**	**0.00**	**0.00**	**34.66**

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	0.31	2.13	1.54	0.00		0.13	0.13		0.13	0.13	0.00	243.69	243.69	0.03	0.00	244.23
Total	**0.31**	**2.13**	**1.54**	**0.00**		**0.13**	**0.13**		**0.13**	**0.13**	**0.00**	**243.69**	**243.69**	**0.03**	**0.00**	**244.23**

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	0.00	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
Vendor	0.01	0.08	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.61	14.61	0.00	0.00	14.62
Worker	0.02	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.01	20.01	0.00	0.00	20.04
Total	**0.03**	**0.09**	**0.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**34.62**	**34.62**	**0.00**	**0.00**	**34.66**

3.5 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.57	3.80	3.00	0.01		0.23	0.23		0.23	0.23	0.00	478.23	478.23	0.05	0.00	479.20
Total	**0.57**	**3.80**	**3.00**	**0.01**		**0.23**	**0.23**		**0.23**	**0.23**	**0.00**	**478.23**	**478.23**	**0.05**	**0.00**	**479.20**

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	0.00	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
Vendor	0.01	0.15	0.11	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	28.74	28.74	0.00	0.00	28.75
Worker	0.03	0.03	0.27	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	38.38	38.38	0.00	0.00	38.43
Total	**0.04**	**0.18**	**0.38**	**0.00**	**0.06**	**0.00**	**0.06**	**0.00**	**0.00**	**0.01**	**0.00**	**67.12**	**67.12**	**0.00**	**0.00**	**67.18**

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	0.57	3.80	3.00	0.01		0.23	0.23		0.23	0.23	0.00	478.23	478.23	0.05	0.00	479.20
Total	**0.57**	**3.80**	**3.00**	**0.01**		**0.23**	**0.23**		**0.23**	**0.23**	**0.00**	**478.23**	**478.23**	**0.05**	**0.00**	**479.20**

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	0.00	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
Vendor	0.01	0.15	0.11	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	28.74	28.74	0.00	0.00	28.75

Worker	0.03	0.03	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.38	38.38	0.00	0.00	38.43
Total	**0.04**	**0.18**	**0.38**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.01**	**0.00**	**67.12**	**67.12**	**0.00**	**0.00**	**67.18**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.08	0.07	0.00		0.00	0.00		0.00	0.00	0.00	10.99	10.99	0.00	0.00	11.01
Total	**0.01**	**0.08**	**0.07**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**10.99**	**10.99**	**0.00**	**0.00**	**11.01**

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	0.00	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
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.66	0.00	0.00	0.66
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.87	0.00	0.00	0.87
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.53**	**1.53**	**0.00**	**0.00**	**1.53**

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	0.01	0.08	0.07	0.00		0.00	0.00		0.00	0.00	0.00	10.99	10.99	0.00	0.00	11.01
Total	**0.01**	**0.08**	**0.07**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**10.99**	**10.99**	**0.00**	**0.00**	**11.01**

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	0.00	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
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.66	0.00	0.00	0.66
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.87	0.00	0.00	0.87
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.53**	**1.53**	**0.00**	**0.00**	**1.53**

3.6 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.08	0.05	0.00		0.01	0.01		0.01	0.01	0.00	6.62	6.62	0.00	0.00	6.64
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.01**	**0.08**	**0.05**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**6.62**	**6.62**	**0.00**	**0.00**	**6.64**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.37	0.00	0.00	0.37
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.37**	**0.37**	**0.00**	**0.00**	**0.37**

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	0.01	0.08	0.05	0.00		0.01	0.01		0.01	0.01	0.00	6.62	6.62	0.00	0.00	6.64
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.01**	**0.08**	**0.05**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**6.62**	**6.62**	**0.00**	**0.00**	**6.64**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.37	0.00	0.00	0.37

Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.37**	**0.37**	**0.00**	**0.00**	**0.37**

3.7 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.36					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.08	0.06	0.00		0.01	0.01		0.01	0.01	0.00	7.65	7.65	0.00	0.00	7.67
Total	**2.37**	**0.08**	**0.06**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**7.65**	**7.65**	**0.00**	**0.00**	**7.67**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76	1.76	0.00	0.00	1.77
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.76**	**1.76**	**0.00**	**0.00**	**1.77**

Mitigated Construction On-Site

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

Category	tons/yr										MT/yr					
Archit. Coating	2.36					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.08	0.06	0.00		0.01	0.01		0.01	0.01	0.00	7.65	7.65	0.00	0.00	7.67
Total	**2.37**	**0.08**	**0.06**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**7.65**	**7.65**	**0.00**	**0.00**	**7.67**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76	1.76	0.00	0.00	1.77
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.76**	**1.76**	**0.00**	**0.00**	**1.77**

4.0 Mobile Detail

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	0.61	1.03	5.41	0.01	0.88	0.04	0.92	0.04	0.04	0.08	0.00	774.87	774.87	0.03	0.00	775.58
Unmitigated	0.61	1.03	5.41	0.01	0.88	0.04	0.92	0.04	0.04	0.08	0.00	774.87	774.87	0.03	0.00	775.58
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	803.88	846.72	736.68	1,786,786	1,786,786
Total	803.88	846.72	736.68	1,786,786	1,786,786

4.3 Trip Type Information

	Miles			Trip %		
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
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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						0.00	0.00		0.00	0.00	0.00	83.97	83.97	0.01	0.00	84.88
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	88.60	88.60	0.01	0.00	89.56
NaturalGas Mitigated	0.02	0.14	0.06	0.00		0.00	0.01		0.00	0.01	0.00	158.99	158.99	0.00	0.00	159.95
NaturalGas Unmitigated	0.02	0.15	0.06	0.00		0.00	0.01		0.00	0.01	0.00	173.69	173.69	0.00	0.00	174.75
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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	tons/yr										MT/yr					
Single Family Housing	3.25484e+006	0.02	0.15	0.06	0.00		0.00	0.01		0.00	0.01	0.00	173.69	173.69	0.00	0.00	####
Total		**0.02**	**0.15**	**0.06**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**173.69**	**173.69**	**0.00**	**0.00**	**174.75**

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	tons/yr										MT/yr					
Single Family Housing	2.97931e+006	0.02	0.14	0.06	0.00		0.00	0.01		0.00	0.01	0.00	158.99	158.99	0.00	0.00	####

Total		**0.02**	**0.14**	**0.06**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**158.99**	**158.99**	**0.00**	**0.00**	**159.95**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Single Family Housing	527922					88.60	0.01	0.00	89.56
Total						**88.60**	**0.01**	**0.00**	**89.56**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Single Family Housing	500310					83.97	0.01	0.00	84.88
Total						**83.97**	**0.01**	**0.00**	**84.88**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.85	0.01	0.64	0.00		0.00	0.01		0.00	0.01	0.00	60.47	60.47	0.00	0.00	60.85
Unmitigated	3.99	0.05	4.72	0.00		0.00	0.58		0.00	0.58	56.45	21.10	77.55	0.07	0.00	80.31
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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	0.24					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.59					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	3.14	0.05	4.08	0.00		0.00	0.58		0.00	0.58	56.45	20.07	76.52	0.07	0.00	79.26
Landscaping	0.02	0.01	0.64	0.00		0.00	0.00		0.00	0.00	0.00	1.03	1.03	0.00	0.00	1.05
Total	**3.99**	**0.06**	**4.72**	**0.00**		**0.00**	**0.58**		**0.00**	**0.58**	**56.45**	**21.10**	**77.55**	**0.07**	**0.00**	**80.31**

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	0.24					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.59					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.01	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	59.44	59.44	0.00	0.00	59.80
Landscaping	0.02	0.01	0.64	0.00		0.00	0.00		0.00	0.00	0.00	1.03	1.03	0.00	0.00	1.05
Total	**0.86**	**0.01**	**0.64**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**60.47**	**60.47**	**0.00**	**0.00**	**60.85**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					6.35	0.15	0.00	10.73
Unmitigated					7.06	0.17	0.00	11.93
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Single Family Housing	5.47294 / 3.45033					7.06	0.17	0.00	11.93
Total						**7.06**	**0.17**	**0.00**	**11.93**

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Single Family Housing	4.92564 / 3.1053					6.35	0.15	0.00	10.73
Total						**6.35**	**0.15**	**0.00**	**10.73**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					23.87	1.41	0.00	53.50
Unmitigated					23.87	1.41	0.00	53.50
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Single Family Housing	117.6					23.87	1.41	0.00	53.50
Total						**23.87**	**1.41**	**0.00**	**53.50**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Single Family Housing	117.6					23.87	1.41	0.00	53.50
Total						**23.87**	**1.41**	**0.00**	**53.50**