Appendix G
Greenhouse Gas Modeling Data

ESA

Saddle Crest Clustered

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Single Family Housing	65	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Project Characteristics -

Land Use - Site acreage = 113 acres - 55 acres (Open space)

Construction Phase - Grubbing/Land Clearing4/1/2013-4/20/2013; Grading 4/1/2013-9/30/2013; Drainage/Utilities/Sub-grade10/1/2013-12/31/2013 Paving11/1/2013-12/31/2013Building Construction 1/1/2014-12/31/2015Architectural Coating 7/1/2015-12/31/2015

Off-road Equipment - Concrete/Industrial Saws1Plate Compactors 2Graders 1Rubber Tired Loaders 2 Skid Steer Loaders 2Trenchers 2

Off-road Equipment - Tractors/Loaders/Backhoes1 Plate Compactors2 Excavators2 Rubber Tired Loaders2 Skid Steer Loaders2 Trenchers2

Off-road Equipment - Excavators2Graders1Rubber Tired Dozers 3Scrapers8Tractors/Loaders/Backhoes1Plate Compactors2Rubber Tired Loaders2Skid Steer Loaders2

Off-road Equipment - Rubber Tired Dozers2Rubber Tired Loaders2Plate Compactors2Skid Steer Loaders2

Off-road Equipment -

Off-road Equipment - Graders 18890.62
Rubber Tired Loaders28820.53
Skid Steer Loaders28840.56
Plate Compactors280.43
Grading -

Woodstoves - No wood stoves per SCAQMD Rule 475.

Construction Off-road Equipment Mitigation -

Vehicle Trips - From TIS

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					
2013	2.62	21.08	11.26	0.02	1.96	0.98	2.94	0.77	0.98	1.75	0.00	2,154.79	2,154.79	0.21	0.00	2,159.27
2014	0.65	3.89	3.01	0.00	0.07	0.31	0.38	0.00	0.31	0.31	0.00	402.52	402.52	0.05	0.00	403.64
2015	1.09	3.80	3.10	0.00	0.07	0.30	0.37	0.00	0.30	0.30	0.00	423.09	423.09	0.05	0.00	424.17
Total	**4.36**	**28.77**	**17.37**	**0.02**	**2.10**	**1.59**	**3.69**	**0.77**	**1.59**	**2.36**	**0.00**	**2,980.40**	**2,980.40**	**0.31**	**0.00**	**2,987.08**

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					
2013	2.62	21.08	11.26	0.02	0.82	0.98	1.80	0.30	0.98	1.28	0.00	2,154.79	2,154.79	0.21	0.00	2,159.27
2014	0.65	3.89	3.01	0.00	0.07	0.31	0.38	0.00	0.31	0.31	0.00	402.52	402.52	0.05	0.00	403.64
2015	1.09	3.80	3.10	0.00	0.07	0.30	0.37	0.00	0.30	0.30	0.00	423.09	423.09	0.05	0.00	424.17
Total	**4.36**	**28.77**	**17.37**	**0.02**	**0.96**	**1.59**	**2.55**	**0.30**	**1.59**	**1.89**	**0.00**	**2,980.40**	**2,980.40**	**0.31**	**0.00**	**2,987.08**

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	0.50	0.01	0.99	0.00		0.00	0.01		0.00	0.01	0.00	48.44	48.44	0.00	0.00	48.76
Energy	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	268.68	268.68	0.01	0.00	270.34
Mobile	0.75	1.32	7.10	0.02	2.12	0.10	2.22	0.03	0.08	0.12	0.00	1,474.64	1,474.64	0.05	0.00	1,475.74
Waste						0.00	0.00		0.00	0.00	15.48	0.00	15.48	0.91	0.00	34.69
Water						0.00	0.00		0.00	0.00	0.00	24.72	24.72	0.13	0.00	28.58
Total	**1.26**	**1.46**	**8.14**	**0.02**	**2.12**	**0.10**	**2.24**	**0.03**	**0.08**	**0.14**	**15.48**	**1,816.48**	**1,831.96**	**1.10**	**0.00**	**1,858.11**

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	0.50	0.01	0.99	0.00		0.00	0.01		0.00	0.01	0.00	48.44	48.44	0.00	0.00	48.76
Energy	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	264.61	264.61	0.01	0.00	266.25
Mobile	0.75	1.32	7.10	0.02	2.12	0.10	2.22	0.03	0.08	0.12	0.00	1,474.64	1,474.64	0.05	0.00	1,475.74
Waste						0.00	0.00		0.00	0.00	12.38	0.00	12.38	0.73	0.00	27.75
Water						0.00	0.00		0.00	0.00	0.00	21.50	21.50	0.10	0.00	24.60
Total	**1.26**	**1.46**	**8.14**	**0.02**	**2.12**	**0.10**	**2.24**	**0.03**	**0.08**	**0.14**	**12.38**	**1,809.19**	**1,821.57**	**0.89**	**0.00**	**1,843.10**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Grubbing/Land Clearing - 2013

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	0.06	0.43	0.25	0.00		0.02	0.02		0.02	0.02	0.00	37.95	37.95	0.00	0.00	38.04
Total	**0.06**	**0.43**	**0.25**	**0.00**	**0.09**	**0.02**	**0.11**	**0.05**	**0.02**	**0.07**	**0.00**	**37.95**	**37.95**	**0.00**	**0.00**	**38.04**

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	2.18	2.18	0.00	0.00	2.19
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.18**	**2.18**	**0.00**	**0.00**	**2.19**

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					0.04	0.00	0.04	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.06	0.43	0.25	0.00		0.02	0.02		0.02	0.02	0.00	37.95	37.95	0.00	0.00	38.04
Total	**0.06**	**0.43**	**0.25**	**0.00**	**0.04**	**0.02**	**0.06**	**0.02**	**0.02**	**0.04**	**0.00**	**37.95**	**37.95**	**0.00**	**0.00**	**38.04**

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	2.18	2.18	0.00	0.00	2.19

Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.18**	**2.18**	**0.00**	**0.00**	**2.19**

3.3 Grading - 2013

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					1.77	0.00	1.77	0.71	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	2.23	18.77	9.26	0.02		0.82	0.82		0.82	0.82	0.00	1,870.75	1,870.75	0.18	0.00	1,874.55
Total	**2.23**	**18.77**	**9.26**	**0.02**	**1.77**	**0.82**	**2.59**	**0.71**	**0.82**	**1.53**	**0.00**	**1,870.75**	**1,870.75**	**0.18**	**0.00**	**1,874.55**

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	0.03	0.03	0.30	0.00	0.07	0.00	0.07	0.00	0.00	0.01	0.00	50.56	50.56	0.00	0.00	50.62
Total	**0.03**	**0.03**	**0.30**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.01**	**0.00**	**50.56**	**50.56**	**0.00**	**0.00**	**50.62**

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					0.69	0.00	0.69	0.28	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	2.23	18.77	9.26	0.02		0.82	0.82		0.82	0.82	0.00	1,870.75	1,870.75	0.18	0.00	1,874.55
Total	**2.23**	**18.77**	**9.26**	**0.02**	**0.69**	**0.82**	**1.51**	**0.28**	**0.82**	**1.10**	**0.00**	**1,870.75**	**1,870.75**	**0.18**	**0.00**	**1,874.55**

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	0.03	0.03	0.30	0.00	0.07	0.00	0.07	0.00	0.00	0.01	0.00	50.56	50.56	0.00	0.00	50.62
Total	**0.03**	**0.03**	**0.30**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.01**	**0.00**	**50.56**	**50.56**	**0.00**	**0.00**	**50.62**

3.4 Drainage/Utilities/Subgrade - 2013

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	0.23	1.46	1.04	0.00		0.11	0.11		0.11	0.11	0.00	139.44	139.44	0.02	0.00	139.84
Total	**0.23**	**1.46**	**1.04**	**0.00**		**0.11**	**0.11**		**0.11**	**0.11**	**0.00**	**139.44**	**139.44**	**0.02**	**0.00**	**139.84**

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	0.01	0.01	0.08	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	13.46	13.46	0.00	0.00	13.47
Total	**0.01**	**0.01**	**0.08**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**13.46**	**13.46**	**0.00**	**0.00**	**13.47**

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	0.23	1.46	1.04	0.00		0.11	0.11		0.11	0.11	0.00	139.44	139.44	0.02	0.00	139.84
Total	**0.23**	**1.46**	**1.04**	**0.00**		**0.11**	**0.11**		**0.11**	**0.11**	**0.00**	**139.44**	**139.44**	**0.02**	**0.00**	**139.84**

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	0.01	0.01	0.08	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	13.46	13.46	0.00	0.00	13.47
Total	**0.01**	**0.01**	**0.08**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**13.46**	**13.46**	**0.00**	**0.00**	**13.47**

3.5 Paving - 2013

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	0.07	0.38	0.29	0.00		0.03	0.03		0.03	0.03	0.00	34.80	34.80	0.01	0.00	34.92
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.07**	**0.38**	**0.29**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**34.80**	**34.80**	**0.01**	**0.00**	**34.92**

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	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.64	5.64	0.00	0.00	5.64
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.64**	**5.64**	**0.00**	**0.00**	**5.64**

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	0.07	0.38	0.29	0.00		0.03	0.03		0.03	0.03	0.00	34.80	34.80	0.01	0.00	34.92
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.07**	**0.38**	**0.29**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**34.80**	**34.80**	**0.01**	**0.00**	**34.92**

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	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.64	5.64	0.00	0.00	5.64
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.64**	**5.64**	**0.00**	**0.00**	**5.64**

3.6 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	0.62	3.71	2.66	0.00		0.30	0.30		0.30	0.30	0.00	330.96	330.96	0.05	0.00	332.02
Total	**0.62**	**3.71**	**2.66**	**0.00**		**0.30**	**0.30**		**0.30**	**0.30**	**0.00**	**330.96**	**330.96**	**0.05**	**0.00**	**332.02**

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	0.16	0.11	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	28.69	28.69	0.00	0.00	28.71
Worker	0.02	0.02	0.24	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	42.87	42.87	0.00	0.00	42.91
Total	**0.03**	**0.18**	**0.35**	**0.00**	**0.07**	**0.01**	**0.08**	**0.00**	**0.01**	**0.01**	**0.00**	**71.56**	**71.56**	**0.00**	**0.00**	**71.62**

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	0.62	3.71	2.66	0.00		0.30	0.30		0.30	0.30	0.00	330.96	330.96	0.05	0.00	332.02
Total	**0.62**	**3.71**	**2.66**	**0.00**		**0.30**	**0.30**		**0.30**	**0.30**	**0.00**	**330.96**	**330.96**	**0.05**	**0.00**	**332.02**

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	0.16	0.11	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	28.69	28.69	0.00	0.00	28.71
Worker	0.02	0.02	0.24	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	42.87	42.87	0.00	0.00	42.91
Total	**0.03**	**0.18**	**0.35**	**0.00**	**0.07**	**0.01**	**0.08**	**0.00**	**0.01**	**0.01**	**0.00**	**71.56**	**71.56**	**0.00**	**0.00**	**71.62**

3.6 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	3.47	2.63	0.00		0.28	0.28		0.28	0.28	0.00	330.96	330.96	0.05	0.00	331.94
Total	**0.57**	**3.47**	**2.63**	**0.00**		**0.28**	**0.28**		**0.28**	**0.28**	**0.00**	**330.96**	**330.96**	**0.05**	**0.00**	**331.94**

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	0.14	0.10	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	28.78	28.78	0.00	0.00	28.79
Worker	0.02	0.02	0.22	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	41.91	41.91	0.00	0.00	41.96
Total	**0.03**	**0.16**	**0.32**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.01**	**0.00**	**70.69**	**70.69**	**0.00**	**0.00**	**70.75**

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	3.47	2.63	0.00		0.28	0.28		0.28	0.28	0.00	330.96	330.96	0.05	0.00	331.94
Total	**0.57**	**3.47**	**2.63**	**0.00**		**0.28**	**0.28**		**0.28**	**0.28**	**0.00**	**330.96**	**330.96**	**0.05**	**0.00**	**331.94**

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	0.14	0.10	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	28.78	28.78	0.00	0.00	28.79
Worker	0.02	0.02	0.22	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	41.91	41.91	0.00	0.00	41.96
Total	**0.03**	**0.16**	**0.32**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.01**	**0.00**	**70.69**	**70.69**	**0.00**	**0.00**	**70.75**

3.7 Painting - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.46					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.17	0.13	0.00		0.01	0.01		0.01	0.01	0.00	16.83	16.83	0.00	0.00	16.88
Total	**0.49**	**0.17**	**0.13**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**16.83**	**16.83**	**0.00**	**0.00**	**16.88**

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	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.61	4.61	0.00	0.00	4.61
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**4.61**	**4.61**	**0.00**	**0.00**	**4.61**

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	0.46					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.17	0.13	0.00		0.01	0.01		0.01	0.01	0.00	16.83	16.83	0.00	0.00	16.88
Total	**0.49**	**0.17**	**0.13**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**16.83**	**16.83**	**0.00**	**0.00**	**16.88**

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	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.61	4.61	0.00	0.00	4.61
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**4.61**	**4.61**	**0.00**	**0.00**	**4.61**

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	0.75	1.32	7.10	0.02	2.12	0.10	2.22	0.03	0.08	0.12	0.00	1,474.64	1,474.64	0.05	0.00	1,475.74
Unmitigated	0.75	1.32	7.10	0.02	2.12	0.10	2.22	0.03	0.08	0.12	0.00	1,474.64	1,474.64	0.05	0.00	1,475.74
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	780.00	780.00	780.00	3,893,373	3,893,373
Total	780.00	780.00	780.00	3,893,373	3,893,373

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	17.60	12.10	14.90	40.20	19.20	40.60

5.0 Energy Detail

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						0.00	0.00		0.00	0.00	0.00	122.01	122.01	0.01	0.00	122.78
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	122.01	122.01	0.01	0.00	122.78
NaturalGas Mitigated	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	146.67	146.67	0.00	0.00	147.57
NaturalGas Unmitigated	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	146.67	146.67	0.00	0.00	147.57
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	2.74855e+006	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	146.67	146.67	0.00	0.00	147.57
Total		**0.01**	**0.13**	**0.05**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**146.67**	**146.67**	**0.00**	**0.00**	**147.57**

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	2.74855e+006	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	146.67	146.67	0.00	0.00	147.57
Total		**0.01**	**0.13**	**0.05**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**146.67**	**146.67**	**0.00**	**0.00**	**147.57**

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	419469					122.01	0.01	0.00	122.78
Total						**122.01**	**0.01**	**0.00**	**122.78**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Single Family Housing	419469					122.01	0.01	0.00	122.78
Total						**122.01**	**0.01**	**0.00**	**122.78**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.50	0.01	1.00	0.00		0.00	0.01		0.00	0.01	0.00	48.44	48.44	0.00	0.00	48.76
Unmitigated	0.50	0.01	1.00	0.00		0.00	0.01		0.00	0.01	0.00	48.44	48.44	0.00	0.00	48.76
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	0.05					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.42					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	46.83	46.83	0.00	0.00	47.11
Landscaping	0.03	0.01	1.00	0.00		0.00	0.01		0.00	0.01	0.00	1.62	1.62	0.00	0.00	1.65
Total	**0.50**	**0.01**	**1.00**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**48.45**	**48.45**	**0.00**	**0.00**	**48.76**

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	0.05					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.42					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	46.83	46.83	0.00	0.00	47.11
Landscaping	0.03	0.01	1.00	0.00		0.00	0.01		0.00	0.01	0.00	1.62	1.62	0.00	0.00	1.65
Total	**0.50**	**0.01**	**1.00**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**48.45**	**48.45**	**0.00**	**0.00**	**48.76**

7.0 Water Detail

7.1 Mitigation Measures Water

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					21.50	0.10	0.00	24.60
Unmitigated					24.72	0.13	0.00	28.58
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	4.23501 / 2.6699					24.72	0.13	0.00	28.58
Total						**24.72**	**0.13**	**0.00**	**28.58**

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Single Family Housing	3.38801 / 2.6699					21.50	0.10	0.00	24.60
Total						**21.50**	**0.10**	**0.00**	**24.60**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					12.38	0.73	0.00	27.75
Unmitigated					15.48	0.91	0.00	34.69
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	76.26					15.48	0.91	0.00	34.69
Total						**15.48**	**0.91**	**0.00**	**34.69**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Single Family Housing	76.26					12.38	0.73	0.00	27.75
Total						**12.38**	**0.73**	**0.00**	**27.75**

9.0 Vegetation

Saddle Crest Non-Clustered

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Single Family Housing	65	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Project Characteristics -

Land Use - Site acreage

Construction Phase - Grubbing/Land Clearing4/1/2013-4/20/2013; Grading 4/1/2013-9/30/2013; Drainage/Utilities/Sub-grade10/1/2013-12/31/2013 Paving 11/1/2013-12/31/2013Building Construction 1/1/2014-6/30/2020Architectural Coating 1/1/2020-6/30/2020

Off-road Equipment - Concrete/Industrial Saws1Plate Compactors 2Graders 1Rubber Tired Loaders 2 Skid Steer Loaders 2Trenchers 2

Off-road Equipment - Plate Compactors2Rubber Tired Loaders2Skid Steer Loaders2Trenchers2Tractors/Loaders/Backhoes1Excavators2

Off-road Equipment - Tractors/Loaders/Backhoes1 Plate Compactors2 Excavators2 Rubber Tired Loaders2 Skid Steer Loaders2 Trenchers2

Off-road Equipment - Excavators2Graders1Rubber Tired Dozers 3Scrapers8Tractors/Loaders/Backhoes1Plate Compactors2Rubber Tired Loaders2Skid Steer Loaders2
Off-road Equipment - Rubber Tired Dozers2Rubber Tired Loaders2Plate Compactors2Skid Steer Loaders2

Off-road Equipment -

Off-road Equipment - Graders 1Rubber Tired Loaders2Skid Steer Loaders2Plate Compactors2

Trips and VMT -

Grading - Site acreage

Vehicle Trips - From TIS

Woodstoves - No wood stoves per SCAQMD Rule 475.

Construction Off-road Equipment Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Energy Use - For BAU

Area 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					
2013	2.88	23.62	12.90	0.03	15.46	1.09	16.55	0.78	1.09	1.87	0.00	2,528.40	2,528.40	0.23	0.00	2,533.13
2014	0.65	3.89	3.01	0.00	0.07	0.31	0.38	0.00	0.31	0.31	0.00	402.52	402.52	0.05	0.00	403.64

2015	0.60	3.63	2.95	0.00	0.07	0.28	0.35	0.00	0.28	0.29	0.00	401.65	401.65	0.05	0.00	402.68
2016	0.56	3.39	2.90	0.00	0.07	0.26	0.32	0.00	0.26	0.26	0.00	400.53	400.53	0.05	0.00	401.48
2017	0.51	3.16	2.85	0.00	0.07	0.23	0.30	0.00	0.23	0.24	0.00	398.18	398.18	0.04	0.00	399.06
2018	0.48	2.97	2.82	0.00	0.07	0.21	0.28	0.00	0.21	0.21	0.00	398.94	398.94	0.04	0.00	399.76
2019	0.45	2.78	2.79	0.00	0.07	0.19	0.26	0.00	0.19	0.19	0.00	398.22	398.22	0.04	0.00	398.99
2020	0.68	1.41	1.51	0.00	0.04	0.09	0.13	0.00	0.09	0.09	0.00	218.65	218.65	0.02	0.00	219.04
Total	**6.81**	**44.85**	**31.73**	**0.03**	**15.92**	**2.66**	**18.57**	**0.78**	**2.66**	**3.46**	**0.00**	**5,147.09**	**5,147.09**	**0.52**	**0.00**	**5,157.78**

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					
2013	2.17	13.46	13.54	0.03	14.28	0.82	15.10	0.30	0.82	1.12	0.00	2,528.40	2,528.40	0.23	0.00	2,533.13
2014	1.02	2.74	2.76	0.00	0.07	0.21	0.28	0.00	0.21	0.22	0.00	402.52	402.52	0.05	0.00	403.64
2015	1.02	2.72	2.73	0.00	0.07	0.21	0.28	0.00	0.21	0.22	0.00	401.65	401.65	0.05	0.00	402.68
2016	1.02	2.71	2.71	0.00	0.07	0.21	0.28	0.00	0.21	0.22	0.00	400.53	400.53	0.05	0.00	401.48
2017	1.01	2.68	2.68	0.00	0.07	0.21	0.28	0.00	0.21	0.22	0.00	398.18	398.18	0.04	0.00	399.06
2018	1.01	2.68	2.67	0.00	0.07	0.21	0.28	0.00	0.21	0.21	0.00	398.94	398.94	0.04	0.00	399.76
2019	1.01	2.68	2.65	0.00	0.07	0.21	0.28	0.00	0.21	0.21	0.00	398.22	398.22	0.04	0.00	398.99
2020	0.98	1.43	1.45	0.00	0.04	0.12	0.16	0.00	0.12	0.12	0.00	218.65	218.65	0.02	0.00	219.04
Total	**9.24**	**31.10**	**31.19**	**0.03**	**14.74**	**2.20**	**16.94**	**0.30**	**2.20**	**2.54**	**0.00**	**5,147.09**	**5,147.09**	**0.52**	**0.00**	**5,157.78**

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	0.50	0.01	0.99	0.00		0.00	0.01		0.00	0.01	0.00	48.44	48.44	0.00	0.00	48.76
Energy	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	268.68	268.68	0.01	0.00	270.34
Mobile	0.75	1.32	7.10	0.02	2.12	0.10	2.22	0.03	0.08	0.12	0.00	1,474.64	1,474.64	0.05	0.00	1,475.74
Waste						0.00	0.00		0.00	0.00	15.48	0.00	15.48	0.91	0.00	34.69
Water						0.00	0.00		0.00	0.00	0.00	24.72	24.72	0.13	0.00	28.58
Total	**1.26**	**1.46**	**8.14**	**0.02**	**2.12**	**0.10**	**2.24**	**0.03**	**0.08**	**0.14**	**15.48**	**1,816.48**	**1,831.96**	**1.10**	**0.00**	**1,858.11**

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	0.50	0.01	0.99	0.00		0.00	0.01		0.00	0.01	0.00	48.44	48.44	0.00	0.00	48.76
Energy	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	264.61	264.61	0.01	0.00	266.25
Mobile	0.75	1.32	7.10	0.02	2.12	0.10	2.22	0.03	0.08	0.12	0.00	1,474.64	1,474.64	0.05	0.00	1,475.74
Waste						0.00	0.00		0.00	0.00	12.38	0.00	12.38	0.73	0.00	27.75
Water						0.00	0.00		0.00	0.00	0.00	21.50	21.50	0.10	0.00	24.60
Total	**1.26**	**1.46**	**8.14**	**0.02**	**2.12**	**0.10**	**2.24**	**0.03**	**0.08**	**0.14**	**12.38**	**1,809.19**	**1,821.57**	**0.89**	**0.00**	**1,843.10**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grubbing/Land Clearing - 2013

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	0.06	0.42	0.24	0.00		0.02	0.02		0.02	0.02	0.00	37.63	37.63	0.00	0.00	37.73
Total	**0.06**	**0.42**	**0.24**	**0.00**	**0.09**	**0.02**	**0.11**	**0.05**	**0.02**	**0.07**	**0.00**	**37.63**	**37.63**	**0.00**	**0.00**	**37.73**

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	2.18	2.18	0.00	0.00	2.19
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.18**	**2.18**	**0.00**	**0.00**	**2.19**

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					0.03	0.00	0.03	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.04	0.20	0.21	0.00		0.01	0.01		0.01	0.01	0.00	37.63	37.63	0.00	0.00	37.73
Total	**0.04**	**0.20**	**0.21**	**0.00**	**0.03**	**0.01**	**0.04**	**0.02**	**0.01**	**0.03**	**0.00**	**37.63**	**37.63**	**0.00**	**0.00**	**37.73**

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	2.18	2.18	0.00	0.00	2.19
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.18**	**2.18**	**0.00**	**0.00**	**2.19**

3.3 Grading - 2013

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					1.78	0.00	1.78	0.71	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	2.23	18.77	9.26	0.02		0.82	0.82		0.82	0.82	0.00	1,870.75	1,870.75	0.18	0.00	1,874.55
Total	**2.23**	**18.77**	**9.26**	**0.02**	**1.78**	**0.82**	**2.60**	**0.71**	**0.82**	**1.53**	**0.00**	**1,870.75**	**1,870.75**	**0.18**	**0.00**	**1,874.55**

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	0.25	2.44	1.57	0.00	13.49	0.10	13.59	0.01	0.10	0.11	0.00	361.27	361.27	0.01	0.00	361.50
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	0.03	0.03	0.30	0.00	0.07	0.00	0.07	0.00	0.00	0.01	0.00	50.56	50.56	0.00	0.00	50.62
Total	**0.28**	**2.47**	**1.87**	**0.00**	**13.56**	**0.10**	**13.66**	**0.01**	**0.10**	**0.12**	**0.00**	**411.83**	**411.83**	**0.01**	**0.00**	**412.12**

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					0.66	0.00	0.66	0.26	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	1.52	9.58	10.01	0.02		0.60	0.60		0.60	0.60	0.00	1,870.75	1,870.75	0.18	0.00	1,874.55
Total	**1.52**	**9.58**	**10.01**	**0.02**	**0.66**	**0.60**	**1.26**	**0.26**	**0.60**	**0.86**	**0.00**	**1,870.75**	**1,870.75**	**0.18**	**0.00**	**1,874.55**

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	0.25	2.44	1.57	0.00	13.49	0.10	13.59	0.01	0.10	0.11	0.00	361.27	361.27	0.01	0.00	361.50
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	0.03	0.03	0.30	0.00	0.07	0.00	0.07	0.00	0.00	0.01	0.00	50.56	50.56	0.00	0.00	50.62
Total	**0.28**	**2.47**	**1.87**	**0.00**	**13.56**	**0.10**	**13.66**	**0.01**	**0.10**	**0.12**	**0.00**	**411.83**	**411.83**	**0.01**	**0.00**	**412.12**

3.4 Drainage/Utilities/Sub-grade - 2013

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	0.23	1.46	1.04	0.00		0.11	0.11		0.11	0.11	0.00	139.44	139.44	0.02	0.00	139.84
Total	**0.23**	**1.46**	**1.04**	**0.00**		**0.11**	**0.11**		**0.11**	**0.11**	**0.00**	**139.44**	**139.44**	**0.02**	**0.00**	**139.84**

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	0.01	0.01	0.08	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	13.46	13.46	0.00	0.00	13.47
Total	**0.01**	**0.01**	**0.08**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**13.46**	**13.46**	**0.00**	**0.00**	**13.47**

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	0.29	0.92	1.00	0.00		0.08	0.08		0.08	0.08	0.00	139.44	139.44	0.02	0.00	139.84
Total	**0.29**	**0.92**	**1.00**	**0.00**		**0.08**	**0.08**		**0.08**	**0.08**	**0.00**	**139.44**	**139.44**	**0.02**	**0.00**	**139.84**

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	0.01	0.01	0.08	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	13.46	13.46	0.00	0.00	13.47

Total	**0.01**	**0.01**	**0.08**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**13.46**	**13.46**	**0.00**	**0.00**	**13.47**

3.5 Paving - 2013

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	0.07	0.48	0.36	0.00		0.04	0.04		0.04	0.04	0.00	47.46	47.46	0.01	0.00	47.58
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.07**	**0.48**	**0.36**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**47.46**	**47.46**	**0.01**	**0.00**	**47.58**

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	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.64	5.64	0.00	0.00	5.64
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.64**	**5.64**	**0.00**	**0.00**	**5.64**

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	0.04	0.27	0.33	0.00		0.03	0.03		0.03	0.03	0.00	47.46	47.46	0.01	0.00	47.58
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.04**	**0.27**	**0.33**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**47.46**	**47.46**	**0.01**	**0.00**	**47.58**

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	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.64	5.64	0.00	0.00	5.64
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.64**	**5.64**	**0.00**	**0.00**	**5.64**

3.6 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	0.62	3.71	2.66	0.00		0.30	0.30		0.30	0.30	0.00	330.96	330.96	0.05	0.00	332.02
Total	**0.62**	**3.71**	**2.66**	**0.00**		**0.30**	**0.30**		**0.30**	**0.30**	**0.00**	**330.96**	**330.96**	**0.05**	**0.00**	**332.02**

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	0.16	0.11	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	28.69	28.69	0.00	0.00	28.71
Worker	0.02	0.02	0.24	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	42.87	42.87	0.00	0.00	42.91
Total	**0.03**	**0.18**	**0.35**	**0.00**	**0.07**	**0.01**	**0.08**	**0.00**	**0.01**	**0.01**	**0.00**	**71.56**	**71.56**	**0.00**	**0.00**	**71.62**

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	0.99	2.56	2.41	0.00		0.21	0.21		0.21	0.21	0.00	330.96	330.96	0.05	0.00	332.02
Total	**0.99**	**2.56**	**2.41**	**0.00**		**0.21**	**0.21**		**0.21**	**0.21**	**0.00**	**330.96**	**330.96**	**0.05**	**0.00**	**332.02**

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	0.16	0.11	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	28.69	28.69	0.00	0.00	28.71

Worker	0.02	0.02	0.24	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	42.87	42.87	0.00	0.00	42.91
Total	**0.03**	**0.18**	**0.35**	**0.00**	**0.07**	**0.01**	**0.08**	**0.00**	**0.01**	**0.01**	**0.00**	**71.56**	**71.56**	**0.00**	**0.00**	**71.62**

3.6 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	3.47	2.63	0.00		0.28	0.28		0.28	0.28	0.00	330.96	330.96	0.05	0.00	331.94
Total	**0.57**	**3.47**	**2.63**	**0.00**		**0.28**	**0.28**		**0.28**	**0.28**	**0.00**	**330.96**	**330.96**	**0.05**	**0.00**	**331.94**

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	0.14	0.10	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	28.78	28.78	0.00	0.00	28.79
Worker	0.02	0.02	0.22	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	41.91	41.91	0.00	0.00	41.96
Total	**0.03**	**0.16**	**0.32**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.01**	**0.00**	**70.69**	**70.69**	**0.00**	**0.00**	**70.75**

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	0.99	2.56	2.41	0.00		0.21	0.21		0.21	0.21	0.00	330.96	330.96	0.05	0.00	331.94
Total	**0.99**	**2.56**	**2.41**	**0.00**		**0.21**	**0.21**		**0.21**	**0.21**	**0.00**	**330.96**	**330.96**	**0.05**	**0.00**	**331.94**

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	0.14	0.10	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	28.78	28.78	0.00	0.00	28.79
Worker	0.02	0.02	0.22	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	41.91	41.91	0.00	0.00	41.96
Total	**0.03**	**0.16**	**0.32**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.01**	**0.00**	**70.69**	**70.69**	**0.00**	**0.00**	**70.75**

3.6 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	0.53	3.25	2.61	0.00		0.25	0.25		0.25	0.25	0.00	330.96	330.96	0.04	0.00	331.86
Total	**0.53**	**3.25**	**2.61**	**0.00**		**0.25**	**0.25**		**0.25**	**0.25**	**0.00**	**330.96**	**330.96**	**0.04**	**0.00**	**331.86**

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	0.13	0.09	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	28.82	28.82	0.00	0.00	28.83
Worker	0.02	0.02	0.20	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	40.75	40.75	0.00	0.00	40.79
Total	**0.03**	**0.15**	**0.29**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.01**	**0.00**	**69.57**	**69.57**	**0.00**	**0.00**	**69.62**

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	0.99	2.56	2.41	0.00		0.21	0.21		0.21	0.21	0.00	330.96	330.96	0.04	0.00	331.86
Total	**0.99**	**2.56**	**2.41**	**0.00**		**0.21**	**0.21**		**0.21**	**0.21**	**0.00**	**330.96**	**330.96**	**0.04**	**0.00**	**331.86**

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	0.13	0.09	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	28.82	28.82	0.00	0.00	28.83
Worker	0.02	0.02	0.20	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	40.75	40.75	0.00	0.00	40.79
Total	**0.03**	**0.15**	**0.29**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.01**	**0.00**	**69.57**	**69.57**	**0.00**	**0.00**	**69.62**

3.6 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	0.49	3.03	2.58	0.00		0.23	0.23		0.23	0.23	0.00	329.70	329.70	0.04	0.00	330.53
Total	**0.49**	**3.03**	**2.58**	**0.00**		**0.23**	**0.23**		**0.23**	**0.23**	**0.00**	**329.70**	**329.70**	**0.04**	**0.00**	**330.53**

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	0.00	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	0.12	0.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	28.78	28.78	0.00	0.00	28.79
Worker	0.02	0.02	0.19	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	39.71	39.71	0.00	0.00	39.75
Total	**0.03**	**0.14**	**0.28**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**68.49**	**68.49**	**0.00**	**0.00**	**68.54**

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	0.98	2.55	2.40	0.00		0.21	0.21		0.21	0.21	0.00	329.70	329.70	0.04	0.00	330.53
Total	**0.98**	**2.55**	**2.40**	**0.00**		**0.21**	**0.21**		**0.21**	**0.21**	**0.00**	**329.70**	**329.70**	**0.04**	**0.00**	**330.53**

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	0.00	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	0.12	0.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	28.78	28.78	0.00	0.00	28.79
Worker	0.02	0.02	0.19	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	39.71	39.71	0.00	0.00	39.75
Total	**0.03**	**0.14**	**0.28**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**68.49**	**68.49**	**0.00**	**0.00**	**68.54**

3.6 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.45	2.84	2.57	0.00		0.21	0.21		0.21	0.21	0.00	330.96	330.96	0.04	0.00	331.74
Total	**0.45**	**2.84**	**2.57**	**0.00**		**0.21**	**0.21**		**0.21**	**0.21**	**0.00**	**330.96**	**330.96**	**0.04**	**0.00**	**331.74**

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	0.11	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	28.95	28.95	0.00	0.00	28.96
Worker	0.02	0.02	0.17	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	39.03	39.03	0.00	0.00	39.06
Total	**0.03**	**0.13**	**0.25**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**67.98**	**67.98**	**0.00**	**0.00**	**68.02**

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	0.99	2.56	2.41	0.00		0.21	0.21		0.21	0.21	0.00	330.96	330.96	0.04	0.00	331.74
Total	**0.99**	**2.56**	**2.41**	**0.00**		**0.21**	**0.21**		**0.21**	**0.21**	**0.00**	**330.96**	**330.96**	**0.04**	**0.00**	**331.74**

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	0.11	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	28.95	28.95	0.00	0.00	28.96
Worker	0.02	0.02	0.17	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	39.03	39.03	0.00	0.00	39.06
Total	**0.03**	**0.13**	**0.25**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**67.98**	**67.98**	**0.00**	**0.00**	**68.02**

3.6 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.42	2.66	2.55	0.00		0.18	0.18		0.18	0.18	0.00	330.96	330.96	0.03	0.00	331.69
Total	**0.42**	**2.66**	**2.55**	**0.00**		**0.18**	**0.18**		**0.18**	**0.18**	**0.00**	**330.96**	**330.96**	**0.03**	**0.00**	**331.69**

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	0.10	0.07	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	29.01	29.01	0.00	0.00	29.02
Worker	0.02	0.01	0.16	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	38.24	38.24	0.00	0.00	38.28
Total	**0.03**	**0.11**	**0.23**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**67.25**	**67.25**	**0.00**	**0.00**	**67.30**

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	0.99	2.56	2.41	0.00		0.21	0.21		0.21	0.21	0.00	330.96	330.96	0.03	0.00	331.69
Total	**0.99**	**2.56**	**2.41**	**0.00**		**0.21**	**0.21**		**0.21**	**0.21**	**0.00**	**330.96**	**330.96**	**0.03**	**0.00**	**331.69**

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	0.10	0.07	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	29.01	29.01	0.00	0.00	29.02
Worker	0.02	0.01	0.16	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	38.24	38.24	0.00	0.00	38.28
Total	**0.03**	**0.11**	**0.23**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**67.25**	**67.25**	**0.00**	**0.00**	**67.30**

3.6 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.20	1.24	1.26	0.00		0.08	0.08		0.08	0.08	0.00	164.85	164.85	0.02	0.00	165.18
Total	**0.20**	**1.24**	**1.26**	**0.00**		**0.08**	**0.08**		**0.08**	**0.08**	**0.00**	**164.85**	**164.85**	**0.02**	**0.00**	**165.18**

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	0.05	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	14.48	14.48	0.00	0.00	14.48
Worker	0.01	0.01	0.08	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	18.69	18.69	0.00	0.00	18.70
Total	**0.01**	**0.06**	**0.11**	**0.00**	**0.04**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**33.17**	**33.17**	**0.00**	**0.00**	**33.18**

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	0.49	1.27	1.20	0.00		0.10	0.10		0.10	0.10	0.00	164.85	164.85	0.02	0.00	165.18
Total	**0.49**	**1.27**	**1.20**	**0.00**		**0.10**	**0.10**		**0.10**	**0.10**	**0.00**	**164.85**	**164.85**	**0.02**	**0.00**	**165.18**

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	0.05	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	14.48	14.48	0.00	0.00	14.48
Worker	0.01	0.01	0.08	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	18.69	18.69	0.00	0.00	18.70
Total	**0.01**	**0.06**	**0.11**	**0.00**	**0.04**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**33.17**	**33.17**	**0.00**	**0.00**	**33.18**

3.7 Painting - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.46					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.11	0.12	0.00		0.01	0.01		0.01	0.01	0.00	16.58	16.58	0.00	0.00	16.60
Total	**0.48**	**0.11**	**0.12**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**16.58**	**16.58**	**0.00**	**0.00**	**16.60**

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	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.06	4.06	0.00	0.00	4.07
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**4.06**	**4.06**	**0.00**	**0.00**	**4.07**

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	0.46					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.10	0.12	0.00		0.01	0.01		0.01	0.01	0.00	16.58	16.58	0.00	0.00	16.60
Total	**0.48**	**0.10**	**0.12**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**16.58**	**16.58**	**0.00**	**0.00**	**16.60**

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	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.06	4.06	0.00	0.00	4.07
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**4.06**	**4.06**	**0.00**	**0.00**	**4.07**

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	0.75	1.32	7.10	0.02	2.12	0.10	2.22	0.03	0.08	0.12	0.00	1,474.64	1,474.64	0.05	0.00	1,475.74
Unmitigated	0.75	1.32	7.10	0.02	2.12	0.10	2.22	0.03	0.08	0.12	0.00	1,474.64	1,474.64	0.05	0.00	1,475.74

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	780.00	780.00	780.00	3,893,373	3,893,373
Total	780.00	780.00	780.00	3,893,373	3,893,373

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	17.60	12.10	14.90	40.20	19.20	40.60

5.0 Energy Detail

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	117.94	117.94	0.01	0.00	118.68
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	122.01	122.01	0.01	0.00	122.78
NaturalGas Mitigated	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	146.67	146.67	0.00	0.00	147.57
NaturalGas Unmitigated	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	146.67	146.67	0.00	0.00	147.57

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	CO
Land Use	kBTU	tons/yr										MT/yr					
Single Family Housing	2.74855e+006	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	146.67	146.67	0.00	0.00	147
Total		**0.01**	**0.13**	**0.05**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**146.67**	**146.67**	**0.00**	**0.00**	**147**

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	CO
Land Use	kBTU	tons/yr										MT/yr					
Single Family Housing	2.74855e+006	0.01	0.13	0.05	0.00		0.00	0.01		0.00	0.01	0.00	146.67	146.67	0.00	0.00	147
Total		**0.01**	**0.13**	**0.05**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**146.67**	**146.67**	**0.00**	**0.00**	**147**

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	419469					122.01	0.01	0.00	122.78

Total						**122.01**	**0.01**	**0.00**	**122.78**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Single Family Housing	405474					117.94	0.01	0.00	118.68
Total						**117.94**	**0.01**	**0.00**	**118.68**

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	0.50	0.01	0.99	0.00		0.00	0.01		0.00	0.01	0.00	48.44	48.44	0.00	0.00	48.76
Unmitigated	0.50	0.01	0.99	0.00		0.00	0.01		0.00	0.01	0.00	48.44	48.44	0.00	0.00	48.76
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	0.05					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.42					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	46.83	46.83	0.00	0.00	47.11
Landscaping	0.03	0.01	0.99	0.00		0.00	0.01		0.00	0.01	0.00	1.62	1.62	0.00	0.00	1.65
Total	**0.50**	**0.01**	**0.99**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**48.45**	**48.45**	**0.00**	**0.00**	**48.76**

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	0.05					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.42					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	46.83	46.83	0.00	0.00	47.11
Landscaping	0.03	0.01	0.99	0.00		0.00	0.01		0.00	0.01	0.00	1.62	1.62	0.00	0.00	1.65
Total	**0.50**	**0.01**	**0.99**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**48.45**	**48.45**	**0.00**	**0.00**	**48.76**

7.0 Water Detail

7.1 Mitigation Measures Water

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					21.50	0.10	0.00	24.60
Unmitigated					24.72	0.13	0.00	28.58
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	4.23501 / 2.6699					24.72	0.13	0.00	28.58
Total						**24.72**	**0.13**	**0.00**	**28.58**

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Single Family Housing	3.38801 / 2.6699					21.50	0.10	0.00	24.60

Total						**21.50**	**0.10**	**0.00**	**24.60**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					12.38	0.73	0.00	27.75
Unmitigated					15.48	0.91	0.00	34.69
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	76.26					15.48	0.91	0.00	34.69
Total						**15.48**	**0.91**	**0.00**	**34.69**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Single Family Housing	61.008					12.38	0.73	0.00	27.75
Total						**12.38**	**0.73**	**0.00**	**27.75**

9.0 Vegetation

2/7/2012 11:13:55 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name:

Project Name: Saddle Crest 2020

Project Location: Orange County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	1,924.81

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	1,924.81

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	CO2
Single family housing	1,924.81
TOTALS (tons/year, unmitigated)	1,924.81

2/7/2012 11:13:55 AM

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	58.00	10.67	dwelling units	65.00	693.55	10,713.82
					693.55	10,713.82

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.4	0.0	100.0	0.0
Light Truck < 3750 lbs	6.9	0.0	98.6	1.4
Light Truck 3751-5750 lbs	24.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.8	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.2	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	2.9	41.4	58.6	0.0
School Bus	0.1	0.0	0.0	100.0

Motor Home	0.8	0.0	87.5	12.5	

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	40.2	19.2	40.6			

% of Trips - Commercial (by land use)

Business as Usual Mobile Source Emissions

From URBEMIS	1925	tons CO2/year
With other GHGs	2021	tons CO2e/year
Emissions after unit conversion	1833	MTCO2e/year

Notes

CO2e estimated based on USEPA assumption that GHG emissions from other pollutants - CH4, N2O, and HFCs account for 5% of emissions from vehicles, after accounting for global warming potent
1 ton = 0.907 metric tons

Energy-related Emissions

Electricity

BAU Emissions	123	MT/year
Improvement from Title 24 2005 to 2008	22.7%	CEC, 2008
Improvement over Title 24 2008	10%	
Total energy reduction over BAU	32.7%	
Reduction in GHG emissions	2.3%	The CAPCOA guidance indicates that for every 1% improvement over Title 24, there is 0.07% reduction in GHG emissions from ele
Reduced GHG emissions	120	MT/year
Reductions from Renewables Portfolio Standard	13%	BAU is 20% RPS, 2020 goal is 33%.
Emissions after RPS	104	MT/year

Natural Gas

BAU Emissions	148	MT/year
Improvement from Title 24 2005 to 2008	8.2%	CEC, 2008
Improvement over Title 24 2008	10%	
Total energy reduction over BAU	18.2%	
Reduction in GHG emissions	14.9%	The CAPCOA guidance indicates that for every 1% improvement over Title 24, there is 0.82% reduction in GHG emissions from nat
Reduced GHG emissions	126	MT/year

Total energy-related emissions	230	MT/year

Definitions:
MT = metric tons
CO2 = carbon dioxide
CO2e = carbon dioxide equivalent
CH4 = methane
N2O = nitrous oxide
HFCs = hydrofluorocarbons
GHG = greenhouse gas
BAU = business-as-usual
RPS = Renewables Portfolio Standard
CAPCOA = California Air Pollution Control Officers Association

References

California Energy Commission (CEC) 2007. Impact Analysis 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings
California Air Pollution Control Officers Association (CAPCOA). 2010. Quantifying Greenhouse Gas Mitigation Measures – A Resource for Local Government to Assess Emission Reductions from Gre

CALIFORNIA GREEN BUILDING STANDARDS CODE – MATRIX ADOPTION TABLE
CHAPTER 4 – RESIDENTIAL MANDATORY MEASURES

Adopting agency	BSC	SFM	HCD			DSA		OSHPD				CSA	DPH	AGR	DWR	CEC	CA	SL	SLC
			1	2	1-AC	AC	SS	1	2	3	4								
Adopt entire CA chapter			X																
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below																			
Chapter/Section																			

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

Division 4.1 – PLANNING AND DESIGN

SECTION 4.101
GENERAL

4.101.1 Purpose. The provisions of this division outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore and enhance the environmental quality of the site and respect the integrity of adjacent properties.

SECTION 4.102
DEFINITIONS

4.102.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

FRENCH DRAIN. A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.

WATTLES. Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.

SECTION 4.103
SITE SELECTION
(Reserved)

SECTION 4.104
SITE PRESERVATION
(Reserved)

SECTION 4.105
DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES
(Reserved)

SECTION 4.106
SITE DEVELOPMENT

4.106.1 General. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.

4.106.2 Storm water drainage and retention during construction. Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.

1. Retention basins of sufficient size shall be utilized to retain storm water on the site.
2. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the enforcing agency.
3. Compliance with a lawfully enacted storm water management ordinance.

4.106.3 Surface drainage. The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how the site grading or drainage system will manage surface water flows. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales
2. Water collection and disposal systems
3. French drains
4. Water retention gardens
5. Other water measures which keep surface water away from buildings and aid in groundwater recharge

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

Division 4.2 – ENERGY EFFICIENCY

SECTION 4.201
GENERAL

4.201.1 Scope. The Department of Housing and Community Development does not regulate mandatory energy efficiency standards in residential buildings. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards.

Note: It is the intent of this code to encourage buildings to achieve exemplary performance in the area of energy efficiency. For the purposes of energy efficiency standards, the California Energy Commission believes specifically, a green building should achieve at least a 15 percent reduction in energy usage when compared to the State's mandatory energy efficiency standards. The Department of Housing and Community Development's mandatory green building standards for residential buildings do not require compliance with levels of minimum energy efficiency beyond those required by the California Energy Commission.

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

Division 4.3 – WATER EFFICIENCY AND CONSERVATION

SECTION 4.301
GENERAL

4.301.1 Scope. The provisions of this chapter shall establish the means of conserving water used indoors, outdoors and in wastewater conveyance.

SECTION 4.302
DEFINITIONS

4.302.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

SECTION 4.303
INDOOR WATER USE

4.303.1 Twenty percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by at least 20 percent shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the *California Building Standards Code*. The 20 percent reduction in potable water use shall be demonstrated by one of the following methods:

1. Each plumbing fixture and fitting shall meet reduced flow rates specified in Table 4.303.2; or
2. A calculation demonstrating a 20 percent reduction in the building "water use" baseline as established in Table 4.303.1 shall be provided. For low-rise residential occupancies, the calculation shall be limited to the following plumbing fixture and fitting types: water closets, urinals, lavatory faucets and showerheads.

4.303.2 Multiple showerheads serving one shower. When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20 percent reduction column contained in Table 4.303.2 or the shower shall be designed to only allow one showerhead to be in operation at a time.

Exception: The maximum flow rate for showerheads when using the calculation method specified in Section 4.303.1, Item 2, is 2.5 gpm @ 80 psi.

4.303.3 Plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 4.303.3.

TABLE 4.303.1
WATER USE BASELINE[1]

FIXTURE TYPE	FLOW RATE[2]	DURATION	DAILY USES	OCCUPANTS[3]
Showerheads, residential	2.5 gpm @ 80 psi	8 min.	1	
Lavatory faucets, residential	2.2 gpm @ 60 psi	.25 min.	3	
Kitchen faucets	2.2 gpm @ 60 psi	4 min.	1	
Replacement aerators	2.2 gpm @ 60 psi			
Gravity tank-type water closets	1.6 gallons/flush	1 flush	1 male[4] 3 female	
Flushometer tank water closets	1.6 gallons/flush	1 flush	1 male[4] 3 female	
Flushometer valve water closets	1.6 gallons/flush	1 flush	1 male[4] 3 female	
Electromechanical hydraulic water closets	1.6 gallons/flush	1 flush	1 male[4] 3 female	
Urinals	1.0 gallon/flush	1 flush	2 male	

Fixture "Water Use" = Flow rate × Duration × Occupants × Daily uses

1. Use Worksheet WS-1 to calculate baseline water use.
2. The flow rate is from the CEC Appliance Efficiency Standards, Title 20, *California Code of Regulations*; where a conflict occurs, the CEC standards shall apply.
3. For low-rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.
4. The daily use number shall be increased to three if urinals are not installed in the room.

TABLE 4.303.2
FIXTURE FLOW RATES

FIXTURE TYPE	FLOW RATE	MAXIMUM FLOW RATE AT ≥ 20 percent REDUCTION
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Lavatory faucets, residential	2.2 gpm @ 60 psi	1.5 gpm @ 60 psi[2]
Kitchen faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi
Gravity tank-type water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Flushometer tank water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Flushometer valve water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Electromechanical hydraulic water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Urinals	1.0 gallon/flush	.5 gallon/flush

1. Includes single and dual flush water closets with an effective flush of 1.28 gallons or less.
   Single flush toilets—The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.
   Dual flush toilets—The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.
2. Lavatory faucets shall not have a flow rate less than 0.8 gpm at 20 psi.

TABLE 4.303.3
STANDARDS FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

REQUIRED STANDARDS	
Water closets (toilets)—flushometer valve-type single flush, maximum flush volume	ASME A 112.19.2/CSA B45.1 – 1.28 gal (4.8 L)
Water closets (toilets)—flushometer valve-type dual flush, maximum flush volume	ASME A 112.19.14 and U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification – 1.28 gal (4.8 L).
Water closets (toilets)—tank type	U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification
Urinals, maximum flush volume	ASME A 112.19.2/CSA B45.1 – 0.5 gal (1.9 L)
Urinals, nonwater urinals	ASME A 112.19.19 (vitreous china) ANSI Z124.9-2004 or IAPMO Z124.9 (plastic)
Public lavatory faucets: Maximum flow rate – 0.5 gpm (1.9 L/min)	ASME A 112.18.1/CSA B125.1
Public metering self-closing faucets: Maximum water use – 0.25 gal (1.0 L) per metering cycle	ASME A 112.18.1/CSA B125.1
Residential bathroom lavatory sink faucets: Maximum flow rate – 1.5 gpm (5.7 L/min)	ASME A 112.18.1/CSA B125.1

SECTION 4.304
OUTDOOR WATER USE

4.304.1 Irrigation controllers. Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:

1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

Note: More information regarding irrigation controller function and specifications is available from the Irrigation Association.

SECTION 4.305
WATER REUSE SYSTEMS
(Reserved)

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

Division 4.4 – MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 4.401
GENERAL

4.401.1 Scope. The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through protection of buildings from exterior moisture; construction waste diversion; employment of techniques to reduce pollution through recycling of materials; and building commissioning or testing, adjusting and balancing.

SECTION 4.402
DEFINITIONS

4.402.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

SECTION 4.403
FOUNDATION SYSTEMS
(Reserved)

SECTION 4.404
EFFICIENT FRAMING TECHNIQUES
(Reserved)

SECTION 4.405
MATERIAL SOURCES
(Reserved)

SECTION 4.406
ENHANCED DURABILITY AND REDUCED MAINTENANCE

4.406.1 Joints and openings. Openings in the building envelope separating conditioned space from unconditioned space needed to accommodate gas, plumbing, electrical lines and other necessary penetrations must be sealed in compliance with the *California Energy Code*.

Exception: Annular spaces around pipes, electric cables, conduits or other openings in plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.

SECTION 4.407
WATER RESISTANCE AND MOISTURE MANAGEMENT
(Reserved)

SECTION 4.408
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

4.408.1 Construction waste reduction of at least 50 percent. Recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent.

Exceptions:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.

4.408.2 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance, a construction waste management plan shall be submitted for approval to the enforcing agency that:

1. Identifies the materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.
2. Specifies if materials will be sorted on-site or mixed for transportation to a diversion facility.
3. Identifies the diversion facility where the material collected will be taken.
4. Identifies construction methods employed to reduce the amount of waste generated.
5. Specifies that the amount of materials diverted shall be calculated by weight or volume, but not by both.

4.408.2.1 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, Items 1 through 5. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

4.408.2.2 Isolated jobsites. The enforcing agency may make exceptions to the requirements of this section when

jobsites are located in areas beyond the haul boundaries of the diversion facility.

Notes:

1. Sample forms found in Chapter 8 may be used to assist in documenting compliance with the waste management plan.
2. Mixed construction and demolition debris (C&D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

SECTION 4.409
LIFE CYCLE ASSESSMENT
(Reserved)

SECTION 4.410
BUILDING MAINTENANCE AND OPERATION

4.410.1 Operation and maintenance manual. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which includes all of the following shall be placed in the building:

1. Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.
2. Operation and maintenance instructions for the following:
   a. Equipment and appliances, including water-saving devices and systems, HVAC systems, water-heating systems and other major appliances and equipment.
   b. Roof and yard drainage, including gutters and downspouts.
   c. Space conditioning systems, including condensers and air filters.
   d. Landscape irrigation systems.
   e. Water reuse systems.
3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.
4. Public transportation and/or carpool options available in the area.
5. Educational material on the positive impacts of an interior relative humidity between 30–60 percent and what methods an occupant may use to maintain the relative humidity level in that range.
6. Information about water-conserving landscape and irrigation design and controllers which conserve water.
7. Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.
8. Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.
9. Information about state solar energy and incentive programs available.
10. A copy of all special inspection verifications required by the enforcing agency or this code.

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES

Division 4.5 – ENVIRONMENTAL QUALITY

SECTION 4.501
GENERAL

4.501.1 Scope. The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors.

SECTION 4.502
DEFINITIONS

4.502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. Composite wood products do not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber as specified in "Structural Glued Laminated Timber" (ANSI A190.1-2002) or prefabricated wood I-joists.

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "base reactive organic gas (ROG) mixture" per weight of compound added, expressed to hundredths of a gram (g O^3/g ROC).

Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).

Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521(a).

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

VOC. A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

Note: Where specific regulations are cited from different agencies such as SCAQMD, ARB, etc., the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.

SECTION 4.503
FIREPLACES

4.503.1 General. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA Phase II emission limits where applicable. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

SECTION 4.504
POLLUTANT CONTROL

4.504.1 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust or debris which may collect in the system.

4.504.2 Finish material pollutant control. Finish materials shall comply with this section.

4.504.2.1 Adhesives, sealants and caulks. Adhesives, sealants and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products, as specified in Subsection 2 below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain

toxic compounds, of *California Code of Regulations*, Title 17, commencing with Section 94507.

4.504.2.2 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 4.504.3 shall apply.

4.504.2.3 Aerosol paints and coatings. Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.

4.504.2.4 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification.
2. Field verification of on-site product containers.

4.504.3 Carpet systems. All carpet installed in the building interior shall meet the testing and product requirements of one of the following:

1. Carpet and Rug Institute's Green Label Plus Program.
2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350).
3. NSF/ANSI 140 at the Gold level.
4. Scientific Certifications Systems Indoor Advantage™ Gold.

TABLE 4.504.1
ADHESIVE VOC LIMIT[1,2]
Less Water and Less Exempt Compounds in Grams per Liter

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Drywall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single-ply roof membrane adhesives	250
Other adhesives not specifically listed	50
SPECIALTY APPLICATIONS	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Contact adhesive	80
Special purpose contact adhesive	250
Structural wood member adhesive	140
Top and trim adhesive	250
SUBSTRATE SPECIFIC APPLICATIONS	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

1. If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content shall be allowed.
2. For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168.

TABLE 4.504.2
SEALANT VOC LIMIT
Less Water and Less Exempt Compounds in Grams per Liter

SEALANTS	CURRENT VOC LIMIT
Architectural	250
Marine deck	760
Nonmembrane roof	300
Roadway	250
Single-ply roof membrane	450
Other	420
SEALANT PRIMERS	
Architectural Nonporous Porous	 250 775
Modified bituminous	500
Marine deck	760
Other	750

TABLE 4.504.3
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2, 3]
Grams of VOC per Liter of Coating,
Less Water and Less Exempt Compounds

COATING CATEGORY	EFFECTIVE 1/1/2010	EFFECTIVE 1/1/2012
Flat coatings	50	
Nonflat coatings	100	
Nonflat-high gloss coatings	150	
Specialty Coatings		
Aluminum roof coatings	400	
Basement specialty coatings	400	
Bituminous roof coatings	50	
Bituminous roof primers	350	
Bond breakers	350	
Concrete curing compounds	350	
Concrete/masonry sealers	100	
Driveway sealers	50	
Dry fog coatings	150	
Faux finishing coatings	350	
Fire resistive coatings	350	
Floor coatings	100	
Form-release compounds	250	
Graphic arts coatings (sign paints)	500	
High temperature coatings	420	
Industrial maintenance coatings	250	
Low solids coatings[1]	120	
Magnesite cement coatings	450	
Mastic texture coatings	100	
Metallic pigmented coatings	500	
Multicolor coatings	250	
Pretreatment wash primers	420	
Primers, sealers, and undercoaters	100	
Reactive penetrating sealers	350	
Recycled coatings	250	
Roof coatings	50	
Rust preventative coatings	400	250
Shellacs Clear Opaque	 730 550	
Specialty primers, sealers and undercoaters	350	100
Stains	250	
Stone consolidants	450	
Swimming pool coatings	340	
Traffic marking coatings	100	
Tub and tile refinish coatings	420	
Waterproofing membranes	250	
Wood coatings	275	
Wood preservatives	350	
Zinc-rich primers	340	

1. Grams of VOC per liter of coating, including water and including exempt compounds.
2. The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
3. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available from the Air Resources Board.

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.

4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.

4.504.4 Resilient flooring systems. Where resilient flooring is installed, at least 50 percent of floor area receiving resilient flooring shall comply with the VOC emission limits defined in the Collaborative for High Performance Schools (CHPS) Low-emitting Materials List or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.

4.504.5 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 4.504.5.

4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

1. Product certifications and specifications
2. Chain of custody certifications
3. Other methods acceptable to the enforcing agency

TABLE 4.504.5
FORMALDEHYDE LIMITS[1]
Maximum Formaldehyde Emissions in Parts per Million

PRODUCT	CURRENT LIMIT	JANUARY 1, 2012	JULY 1, 2012
Hardwood plywood veneer core	0.05		
Hardwood plywood composite core	0.08		0.05
Particleboard	0.09		
Medium density fiberboard	0.11		
Thin medium density fiberboard[2]	0.21	0.13	

1. Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E 1333-96(2002). For additional information, see *California Code of Regulations*, Title 17, Sections 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness of 8 millimeters.

SECTION 4.505
INTERIOR MOISTURE CONTROL

4.505.1 General. Buildings shall meet or exceed the provisions of the *California Building Standards Code*.

4.505.2 Concrete slab foundations. Concrete slab foundations required to have a vapor retarder by *California Building Code*, CCR, Title 24, Part 2, Chapter 19, shall also comply with this section.

4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:

1. A 4-inch (101.6 mm) thick base of $^1/_2$ inch (12.7 mm) or larger clean aggregate shall be provided with a

vapor barrier in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.

2. Other equivalent methods approved by the enforcing agency.
3. A slab design specified by a licensed design professional.

4.505.3 Moisture content of building materials. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:

1. Moisture content shall be determined with either a probe-type or contact-type moisture meter.
2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece to be verified.
3. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.

Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

SECTION 4.506
INDOOR AIR QUALITY AND EXHAUST

4.506.1 Bathroom exhaust fans. Mechanical exhaust fans which exhaust directly from bathrooms shall comply with the following:

1. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidistat which shall be readily accessible.

Humidistat controls shall be capable of adjustment between a relative humidity range of 50 to 80 percent.

Note: For the purposes of this section, a bathroom is a room which contains a bathtub, shower or tub/shower combination.

SECTION 4.507
ENVIRONMENTAL COMFORT

4.507.1 Openings. Whole house exhaust fans shall have insulated louvers or covers which close when the fan is off. Covers or louvers shall have a minimum insulation value of R-4.2.

4.507.2 Heating and air-conditioning system design. Heating and air-conditioning systems shall be sized, designed and have their equipment selected using the following methods:

1. The heat loss and heat gain is established according to ACCA Manual J, ASHRAE handbooks or other equivalent design software or methods.
2. Duct systems are sized according to ACCA 29-D Manual D, ASHRAE handbooks or other equivalent design software or methods.
3. Select heating and cooling equipment according to ACCA 36-S Manual S or other equivalent design software or methods.

Exception: Use of alternate design temperatures necessary to ensure the systems function are acceptable.

SECTION 4.508
OUTDOOR AIR QUALITY
(Reserved)