

Summary of Operational Greenhouse Gases

Unmitigated

University Hills

Prepared by Michael Brandman Associates

Buildout Year 2011

Source	Carbon Dioxide	Nitrous Oxide	Methane	Hydro-fluorocarbons	Units	Metric Tons CO2E	MMTCO2e
Motor vehicles	11,361	1.64	3.28		tons per year	10769	0.011
Natural gas	2,400	0.01	0.42		tons per year	2175	0.002
Indirect electricity	2,218	0.01	0.02		tons per year	2004	0.002
Hearth	4				tons per year	3	0.000
Water transport	1,865	0.01	0.02		tons per year	1685	0.002
Landscape	2				tons per year	2	0.000
Refrigerants				2.70	tons per year	3163	0.003
Total	17,849	1.67	3.73	2.70	tons per year	19801	0.020
Total	16,100	1.50	3.37		2.43 metric tons per year		
GWP	1	310	21				
Total	16,100	466	71		3,163 MTCO2E per year		
Total	0.0161	0.0005	0.0001		0.0032 MMTCO2E per year		

Total - all gases
19,801 MTCO2E per year
0.0198 MMTCO2E per year

California emissions in 2004
Project percent of emissions 500 MMTCO2 Eq. per year
0.003960%

U.S. emissions in 2005
Project percent of emissions 7,260.4
0.000273%

Global emissions in 2004
Project percent of emissions 20135
0.000098%

Emissions converted from tons per year to metric tons of carbon dioxide equivalents (MTCO2E) per year by using the formula: (tons of gas) x (global warming potential) x (0.902 metric tons)

Emissions converted to million metric tons of carbon dioxide equivalents (MMTCO2E) using the formula: MMTCO2E = (metric tons of gas) / (1,000,000).

Mobile Emissions - Methane**Unmitigated**

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University Hills

13-Dec-07

Prepared by Michael Brandman Associates

Buildout Year 2011

Vehicle Miles Traveled

62,028

Starting Emissions	0.66 lbs/day	0.0003 tons/day	0.12 tons/year
Running Emissions	17.33 lbs/day	0.0087 tons/day	3.16 tons/year
Total	17.99 lbs/day	0.0090 tons/day	3.28 tons/year

Vehicle Percentages

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	54.7%	1.1%	98.7%	0.2%
Light Truck < 3,750 lbs	15.2%	2.0%	96.0%	2.0%
Light Truck 3,751- 5,750	16.2%	1.2%	98.1%	0.7%
Med Truck 5,751- 8,500	7.3%	1.4%	95.9%	2.7%
Lite-Heavy 8,501-10,000	1.1%	0.0%	81.8%	18.2%
Lite-Heavy 10,001-14,000	0.3%	0.0%	66.7%	33.3%
Med-Heavy 14,001-33,000	1.0%	0.0%	20.0%	80.0%
Heavy-Heavy 33,001-60,000	0.9%	0.0%	11.1%	88.9%
Line Haul > 60,000 lbs	0.0%	0.0%	0.0%	100.0%
Urban Bus	0.2%	0.0%	50.0%	50.0%
Motorcycle	1.6%	68.8%	31.2%	0.0%
School Bus	0.1%	0.0%	0.0%	100.0%
Motor Home	1.4%	7.1%	85.7%	7.2%

Running Emission Factors (g/mile)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.1931	0.1127	0.0161
Light Truck < 3,750 lbs	LDT1	0.2253	0.1448	0.0161
Light Truck 3,751- 5,750	LDT2	0.2253	0.1448	0.0161
Med Truck 5,751- 8,500	MDV	0.2253	0.1448	0.0161
Lite-Heavy 8,501-10,000	LHDT1	0.2012	0.1448	0.0805
Lite-Heavy 10,001-14,000	LHDT2	0.2012	0.1448	0.0805
Med-Heavy 14,001-33,000	MHDT	0.2012	0.1448	0.0805
Heavy-Heavy 33,001-60,000	HHDT	0.2012	0.1448	0.0805
Line Haul > 60,000 lbs	LHV	0.2012	0.1448	0.0805
Urban Bus	UB	0.2012	0.1448	0.0805
Motorcycle	MCY	0.2092	0.2092	0.2092
School Bus	SBUS	0.2012	0.1448	0.0805
Motor Home	MH	0.2012	0.1448	0.0805

Running Emissions (pounds per day)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.16	8.30	0.00
Light Truck < 3,750 lbs	0.09	2.88	0.01
Light Truck 3,751- 5,750	0.06	3.14	0.00
Med Truck 5,751- 8,500	0.03	1.38	0.00
Lite-Heavy 8,501-10,000	0.00	0.18	0.02
Lite-Heavy 10,001-14,000	0.00	0.04	0.01
Med-Heavy 14,001-33,000	0.00	0.04	0.09
Heavy-Heavy 33,001-60,000	0.00	0.02	0.09
Line Haul > 60,000 lbs	0.00	0.00	0.00
Urban Bus	0.00	0.02	0.01
Motorcycle	0.31	0.14	0.00
School Bus	0.00	0.00	0.01
Motor Home	0.03	0.24	0.01
Total	0.68	16.39	0.26

Mobile Emissions - Methane

University Hills

Prepared by Michael Brandman Associates

Buildout Year 2011

Total Trips

6140

Starting Emission Factors (g/start)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.059	0.009	-0.003
Light Truck < 3,750 lbs	LDT1	0.067	0.099	-0.004
Light Truck 3,751- 5,750	LDT2	0.067	0.099	-0.004
Med Truck 5,751- 8,500	MDV	0.067	0.099	-0.004
Lite-Heavy 8,501-10,000	LHDT1	0.147	0.215	-0.004
Lite-Heavy 10,001-14,000	LHDT2	0.147	0.215	-0.004
Med-Heavy 14,001-33,000	MHDT	0.147	0.215	-0.004
Heavy-Heavy 33,001-60,000	HHDT	0.147	0.215	-0.004
Line Haul > 60,000 lbs	LHV	0.147	0.215	-0.004
Urban Bus	UB	0.147	0.215	-0.004
Motorcycle	MCY	0.024	0.024	0.033
School Bus	SBUS	0.147	0.215	-0.004
Motor Home	MH	0.147	0.215	-0.004

Trip Distribution

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	36.9	3314.9	6.7
Light Truck < 3,750 lbs	LDT1	18.7	895.9	18.7
Light Truck 3,751- 5,750	LDT2	11.9	975.8	7.0
Med Truck 5,751- 8,500	MDV	6.3	429.8	12.1
Lite-Heavy 8,501-10,000	LHDT1	0.0	55.2	12.3
Lite-Heavy 10,001-14,000	LHDT2	0.0	12.3	6.1
Med-Heavy 14,001-33,000	MHDT	0.0	12.3	49.1
Heavy-Heavy 33,001-60,000	HHDT	0.0	6.1	49.1
Line Haul > 60,000 lbs	LHV	0.0	0.0	0.0
Urban Bus	UB	0.0	6.1	6.1
Motorcycle	MCY	67.6	30.7	0.0
School Bus	SBUS	0.0	0.0	6.1
Motor Home	MH	6.1	73.7	6.2
Total		147.5	5812.9	179.6

Starting Emissions (pounds per day)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0048	0.0656	0.0000
Light Truck < 3,750 lbs	LDT1	0.0028	0.1951	-0.0002
Light Truck 3,751- 5,750	LDT2	0.0018	0.2125	-0.0001
Med Truck 5,751- 8,500	MDV	0.0009	0.0936	-0.0001
Lite-Heavy 8,501-10,000	LHDT1	0.0000	0.0261	-0.0001
Lite-Heavy 10,001-14,000	LHDT2	0.0000	0.0058	-0.0001
Med-Heavy 14,001-33,000	MHDT	0.0000	0.0058	-0.0004
Heavy-Heavy 33,001-60,000	HHDT	0.0000	0.0029	-0.0004
Line Haul > 60,000 lbs	LHV	0.0000	0.0000	0.0000
Urban Bus	UB	0.0000	0.0029	-0.0001
Motorcycle	MCY	0.0036	0.0016	0.0000
School Bus	SBUS	0.0000	0.0000	-0.0001
Motor Home	MH	0.0020	0.0348	-0.0001
Total		0.0158	0.6469	-0.0016

- Source of running emission factors: U.S. Environmental Protection Agency. Climate Leaders Greenhouse Gas Inventory Protocol, Core Module Guidance. Direct Emissions from Mobile Combustion Sources. October 2004.

- Source of vehicle percentages: URBEMIS2002 default values.

- Source of starting emissions: U.S. Environmental Protection Agency. Prepared by ICF Consulting. EPA420-P-04-016. Update of Methane and Nitrous Oxide Emission Factors for On-Highway Vehicles. November 2004.

Vehicle Miles Traveled 62,028

Starting Emissions	1.07 lbs/day	0.0005 tons/day	0.20 tons/year
Running Emissions	7.92 lbs/day	0.0040 tons/day	1.44 tons/year
Total	8.99 lbs/day	0.0045 tons/day	1.64 tons/year

Vehicle Percentages

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	54.7%	1.1%	98.7%	0.2%
Light Truck < 3,750 lbs	15.2%	2.0%	96.0%	2.0%
Light Truck 3,751- 5,750	16.2%	1.2%	98.1%	0.7%
Med Truck 5,751- 8,500	7.3%	1.4%	95.9%	2.7%
Lite-Heavy 8,501-10,000	1.1%	0.0%	81.8%	18.2%
Lite-Heavy 10,001-14,000	0.3%	0.0%	66.7%	33.3%
Med-Heavy 14,001-33,000	1.0%	0.0%	20.0%	80.0%
Heavy-Heavy 33,001-60,000	0.9%	0.0%	11.1%	88.9%
Line Haul > 60,000 lbs	0.0%	0.0%	0.0%	100.0%
Urban Bus	0.2%	0.0%	50.0%	50.0%
Motorcycle	1.6%	68.8%	31.2%	0.0%
School Bus	0.1%	0.0%	0.0%	100.0%
Motor Home	1.4%	7.1%	85.7%	7.2%

Running Emission Factors (g/mile)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0166	0.0518	0.0161
Light Truck < 3,750 lbs	LDT1	0.0208	0.0649	0.0322
Light Truck 3,751- 5,750	LDT2	0.0208	0.0649	0.0322
Med Truck 5,751- 8,500	MDV	0.0208	0.0649	0.0322
Lite-Heavy 8,501-10,000	LHDT1	0.0480	0.1499	0.0483
Lite-Heavy 10,001-14,000	LHDT2	0.0480	0.1499	0.0483
Med-Heavy 14,001-33,000	MHDT	0.0480	0.1499	0.0483
Heavy-Heavy 33,001-60,000	HHDT	0.0480	0.1499	0.0483
Line Haul > 60,000 lbs	LHV	0.0480	0.1499	0.0483
Urban Bus	UB	0.0480	0.1499	0.0483
Motorcycle	MCY	0.0073	0.0073	0.0073
School Bus	SBUS	0.0480	0.1499	0.0483
Motor Home	MH	0.0480	0.1499	0.0483

Running Emissions (pounds per day)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.01	3.82	0.00
Light Truck < 3,750 lbs	0.01	1.29	0.01
Light Truck 3,751- 5,750	0.01	1.41	0.00
Med Truck 5,751- 8,500	0.00	0.62	0.01
Lite-Heavy 8,501-10,000	0.00	0.18	0.01
Lite-Heavy 10,001-14,000	0.00	0.04	0.01
Med-Heavy 14,001-33,000	0.00	0.04	0.05
Heavy-Heavy 33,001-60,000	0.00	0.02	0.05
Line Haul > 60,000 lbs	0.00	0.00	0.00
Urban Bus	0.00	0.02	0.01
Motorcycle	0.01	0.00	0.00
School Bus	0.00	0.00	0.01
Motor Home	0.01	0.25	0.01
Total	0.05	7.69	0.17

Mobile Emissions - Nitrous Oxide

University Hills

Prepared by Michael Brandman Associates

Buildout Year 2011

Total Trips 6140**Starting Emission Factors (g/start)**

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.028	0.072	0.000
Light Truck < 3,750 lbs	LDT1	0.032	0.093	-0.001
Light Truck 3,751- 5,750	LDT2	0.032	0.093	-0.001
Med Truck 5,751- 8,500	MDV	0.032	0.093	-0.001
Lite-Heavy 8,501-10,000	LHDT1	0.070	0.194	-0.002
Lite-Heavy 10,001-14,000	LHDT2	0.070	0.194	-0.002
Med-Heavy 14,001-33,000	MHDT	0.070	0.194	-0.002
Heavy-Heavy 33,001-60,000	HHDT	0.070	0.194	-0.002
Line Haul > 60,000 lbs	LHV	0.070	0.194	-0.002
Urban Bus	UB	0.070	0.194	-0.002
Motorcycle	MCY	0.012	0.012	0.012
School Bus	SBUS	0.070	0.194	-0.002
Motor Home	MH	0.070	0.194	-0.002

Trip Distribution

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	36.9	3314.9	6.7
Light Truck < 3,750 lbs	LDT1	18.7	895.9	18.7
Light Truck 3,751- 5,750	LDT2	11.9	975.8	7.0
Med Truck 5,751- 8,500	MDV	6.3	429.8	12.1
Lite-Heavy 8,501-10,000	LHDT1	0.0	55.2	12.3
Lite-Heavy 10,001-14,000	LHDT2	0.0	12.3	6.1
Med-Heavy 14,001-33,000	MHDT	0.0	12.3	49.1
Heavy-Heavy 33,001-60,000	HHDT	0.0	6.1	49.1
Line Haul > 60,000 lbs	LHV	0.0	0.0	0.0
Urban Bus	UB	0.0	6.1	6.1
Motorcycle	MCY	67.6	30.7	0.0
School Bus	SBUS	0.0	0.0	6.1
Motor Home	MH	6.1	73.7	6.2
Total		147.5	5812.9	179.6

Starting Emissions (pounds per day)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0023	0.5251	0.0000
Light Truck < 3,750 lbs	LDT1	0.0013	0.1833	0.0000
Light Truck 3,751- 5,750	LDT2	0.0008	0.1996	0.0000
Med Truck 5,751- 8,500	MDV	0.0004	0.0879	0.0000
Lite-Heavy 8,501-10,000	LHDT1	0.0000	0.0236	-0.0001
Lite-Heavy 10,001-14,000	LHDT2	0.0000	0.0052	0.0000
Med-Heavy 14,001-33,000	MHDT	0.0000	0.0052	-0.0002
Heavy-Heavy 33,001-60,000	HHDT	0.0000	0.0026	-0.0002
Line Haul > 60,000 lbs	LHV	0.0000	0.0000	0.0000
Urban Bus	UB	0.0000	0.0026	0.0000
Motorcycle	MCY	0.0018	0.0008	0.0000
School Bus	SBUS	0.0000	0.0000	0.0000
Motor Home	MH	0.0009	0.0314	0.0000
Total		0.0076	1.0675	-0.0007

- Source of running emission factors: U.S. Environmental Protection Agency. Climate Leaders Greenhouse Gas Inventory Protocol, Core Module Guidance. Direct Emissions from Mobile Combustion Sources. October 2004.

- Source of vehicle percentages: URBEMIS2002 default values.

- Source of starting emissions: U.S. Environmental Protection Agency. Prepared by ICF Consulting. EPA420-P-04-016. Update of Methane and Nitrous Oxide Emission Factors for On-Highway Vehicles. November 2004.

Electricity - Indirect Emissions

Project: University Hills
Prepared by: Michael Brandman Associates
Prepared on: 12/13/2007

Electricity Use 5,513,970 KWh/year
Electricity Use 5514 MWh/year

Greenhouse Gas	Emission Factor (pounds per MWh/year)	Emissions (pounds/year)	Emissions (tons/year)
Carbon dioxide	804.54	4,436,209	2,218
Methane	0.0067	37	0.018
Nitrous oxide	0.0037	20	0.010

Emission factor source:

California Climate Action Registry. General Reporting Protocol. Reporting Entity-Wide Greenhouse Gas Emissions. Version 2.2, March 2007. www.climateregistry.org

Residential electricity usage rate: 5626.50 kwh/unit/year, from South Coast Air Quality Management 1993 CEQA Handbook, Table 9-11-A

Electricity Use in Typical Urban Water Systems

Project: University Hills
 Prepared by: Michael Brandman Associates
 Prepared on: 12/13/2007

	kWh/MG	
	Northern California	Southern California
Water Supply and Conveyance	150	8,900
Water Treatment	100	100
Water Distribution	1,200	1,200
Wastewater Treatment	2,500	2,500
Totals	3,950	12,700

From California's Water Energy Relationship, CEC 2005

	Gallons per day	Millions Gallons (MG) per year	kWh	MWh
	Water Usage	1000000		
Energy Usage				

Greenhouse Gas	Indirect Electricity Emission Factor		
	(pounds per MWh/year)	Emissions (pounds/year)	Emissions (tons/year)
Carbon dioxide	804.54	3,729,445	1,865
Methane	0.0067	31.06	0.016
Nitrous oxide	0.0037	17.15	0.009

Emission factor for electricity source:
 California Climate Action Registry. General Reporting Protocol. Reporting Entity-Wide
 Greenhouse Gas Emissions. Version 2.2, March 2007. www.climateregistry.org

CEC 2005: California Energy Commission. California's Energy-Water Relationship.
 Final Staff Report. November 2005. CEC-700-2005-011-SF

Natural Gas Combustion

University Hills

Prepared by Michael Brandman Associates

12/13/2007

Gas	Type of Land Use	Square Feet or Units	Natural Gas Usage Factor* (SCF/square foot or unit/month)	Natural Gas Usage for Project (SCF/month)	Natural Gas usage for Project (SCF/year)	Emission Factor (g CO2/SCF)**	Emission Factor (g/MMBTU)**	Heating Value of Natural Gas (BTU/SCF)**	Emissions (tons per year)	Emissions (pounds per day)
Methane	Office	0	2.0	0	0	N/A	4.75	1020	0.00	0.00
	Retail/Shopping	0	2.9	0	0	N/A	4.75	1020	0.00	0.00
	Residential	980	6665	6531700	78380400	N/A	4.75	1020	0.42	2.29
	Industrial		241611	0	0	N/A	4.75	1020	0.00	0.00
	Multi-family	0	4011.5	0	0	N/A	4.75	1020	0.00	0.00
Nitrous Oxide	Office	0	2.0	0	0	N/A	0.095	1020	0.00	0.00
	Retail/Shopping	0	2.9	0	0	N/A	0.095	1020	0.00	0.00
	Residential	980	6665	6531700	78380400	N/A	0.095	1020	0.01	0.05
	Industrial		241611	0	0	N/A	0.095	1020	0.00	0.00
	Multi-family	0	4011.5	0	0	N/A	0.095	1020	0.00	0.00
Total										
		Units	Mitigation Reduction	Nitrous Oxide	Methane					
		pounds per day	0%	0.05	2.29					
		tons per year		0.01	0.42					
		GWP		310	21					
		Tg CO2 Eq/year		0.000003	0.000009					

* Natural gas usage factor from URBEMIS2002 default; Industrial is based on number of buildings

** USEPA, 2004: Direct Emissions from Stationary Combustion Sources, Climate Leaders Greenhouse Inventory Protocol, Core Model Guidance, October 2004
Emissions of CH4, N2O = Emission Factor x Heating Value of Natural Gas x Natural Gas Usage x Number of Units/Square Feet

Air Conditioning and Refrigeration Fugitive Emissions

Project: University Hills
 Prepared by: Michael Brandman Associates
 Prepared on: 12/13/2007

Type of Unit	Units	Capacity of Unit (kg)	Annual Leak Rate in percent of capacity	Emissions (kg/year)	Emissions (tons/year)	Global Warming Potential	Metric Tons CO2 Equiv./year
Domestic Refrigeration	980	0.5	0.5%	2.45	0.003	1300	3
Residential A/C	980	50	5%	2450	2.695	1300	3,160
Total					2.698		3,163

Source:

EPA 2004c U.S. Environmental Protection Agency, Climate Leaders. October 2004. Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment. EPA430-K-03-004. www.epa.gov/climateleaders/docs/refrige_acequipuseguidance.pdf

Notes:

The number of air conditioning units for commercial is estimated by assuming one unit per 1,000 square feet. This information is based on experience with other projects.

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Urbemis 2007 Version 9.2.2

Combined Annual Emissions Reports (Tons/Year)

File Name: S:\Cori\Air Quality Peer Reviews\25330006\UnivHillsURBEMIS.urb9

Project Name: University Hills

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>CO2</u>
2009 TOTALS (tons/year unmitigated)	1,428.22
2009 TOTALS (tons/year mitigated)	1,428.22
Percent Reduction	0.00

2010 TOTALS (tons/year unmitigated)	2,315.38
2010 TOTALS (tons/year mitigated)	2,315.38
Percent Reduction	0.00

AREA SOURCE EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	2,405.67

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	11,361.36

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	13,767.03

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	<u>CO2</u>
2009	1,428.22
Mass Grading 01/01/2009-07/31/2009	792.73
Mass Grading Dust	0.00
Mass Grading Off Road Diesel	766.72
Mass Grading On Road Diesel	0.00
Mass Grading Worker Trips	26.01
Fine Grading 08/01/2009-10/31/2009	124.25
Fine Grading Dust	0.00
Fine Grading Off Road Diesel	118.18
Fine Grading On Road Diesel	0.00
Fine Grading Worker Trips	6.07
Trenching 08/01/2009-10/31/2009	59.77
Trenching Off Road Diesel	55.73
Trenching Worker Trips	4.04
Asphalt 11/01/2009-12/31/2009	64.39
Paving Off-Gas	0.00
Paving Off Road Diesel	31.21
Paving On Road Diesel	29.75
Paving Worker Trips	3.42

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Building 11/01/2009-12/31/2010	387.08
Building Off Road Diesel	71.47
Building Vendor Trips	101.36
Building Worker Trips	214.25
2010	2,315.38
Building 11/01/2009-12/31/2010	2,295.76
Building Off Road Diesel	423.97
Building Vendor Trips	601.29
Building Worker Trips	1,270.50
Coating 03/01/2010-12/31/2010	19.62
Architectural Coating	0.00
Coating Worker Trips	19.62

Phase Assumptions

Phase: Fine Grading 8/1/2009 - 10/31/2009 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 160

Maximum Daily Acreage Disturbed: 20

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

- 1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Phase: Mass Grading 1/1/2009 - 7/31/2009 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 170

Maximum Daily Acreage Disturbed: 50

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

3 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 8/1/2009 - 10/31/2009 - Default Trenching Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 11/1/2009 - 12/31/2009 - Default Paving Description

Acres to be Paved: 40

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 11/1/2009 - 12/31/2010 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

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- 3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day
- 4 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 3/1/2010 - 12/31/2010 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>CO2</u>
Natural Gas	2,400.13
Hearth	3.65
Landscape	1.89
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	2,405.67

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	CO2
Single family housing	1,894.85
Condo/townhouse general	9,466.51
TOTALS (tons/year, unmitigated)	11,361.36

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 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	70.00	9.57	dwelling units	107.00	1,023.99	10,345.17
Condo/townhouse general	90.00	5.86	dwelling units	873.00	5,115.78	51,683.70
					6,139.77	62,028.87

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		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	32.9	18.0	49.1			

Travel Conditions

	Residential				Commercial	
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer

% of Trips - Commercial (by land use)

Operational Changes to Defaults