

Air Quality

- Urbemis 2007 Calculations

APPENDIX B

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\hgiroux\AppData\Roaming\Urbemis\Version9a\Projects\SBBG Construction.urb924

Project Name: SBBG Construction

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

4/10/2009 3:29:20 PM

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (lbs/day unmitigated)	1.53	13.43	5.70	0.00	1.69	0.68	2.37	0.35	0.62	0.98	1,312.91
2010 TOTALS (lbs/day unmitigated)	3.16	26.87	13.38	0.00	5.51	1.33	6.83	1.15	1.22	2.37	2,505.97
2011 TOTALS (lbs/day unmitigated)	2.14	14.61	9.50	0.00	0.00	1.09	1.09	0.00	1.00	1.00	1,419.38
2012 TOTALS (lbs/day unmitigated)	1.68	10.12	6.59	0.00	0.00	0.88	0.88	0.00	0.81	0.81	912.83
2013 TOTALS (lbs/day unmitigated)	13.82	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.48	0.24	1.85	0.00	0.01	0.01	272.44

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.21	0.00	0.00	0.00	0.00	0.00	0.05

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.69	0.24	1.85	0.00	0.01	0.01	272.49

4/10/2009 3:29:20 PM

Time Slice 1/2/2012-2/29/2012 Active Days: 43	1.68	10.12	6.59	0.00	0.00	0.88	0.00	0.81	0.81	912.83
Asphalt 01/02/2012-02/29/2012	1.68	10.12	6.59	0.00	0.00	0.88	0.00	0.81	0.81	912.83
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.63	10.11	6.41	0.00	0.00	0.88	0.00	0.81	0.81	908.50
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.01	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	4.33
Time Slice 1/1/2013-2/28/2013 Active Days: 43	13.82	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.83
Coating 01/01/2013-02/28/2013	13.82	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.83
Architectural Coating	13.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.83

Phase Assumptions

- Phase: Demolition 11/2/2009 - 12/31/2009 - Default Demolition Description
- Building Volume Total (cubic feet): 100000
- Building Volume Daily (cubic feet): 4000
- On Road Truck Travel (VMT): 74.07
- Off-Road Equipment:
 - 1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
 - 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
 - 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day
 - 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day
- Phase: Fine Grading 1/4/2010 - 12/31/2010 - Default Fine Site Grading/Excavation Description
- Total Acres Disturbed: 2.19
- Maximum Daily Acreage Disturbed: 0.55
- Fugitive Dust Level of Detail: Default
- 10 lbs per acre-day

Page: 5

4/10/2009 3:29:20 PM

On Road Truck Travel (VMT) : 60

Off-Road Equipment:

- 1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/2/2012 - 2/29/2012 - Default Paving Description

Acres to be Paved: 0.55

Off-Road Equipment:

- 1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 1/3/2011 - 12/30/2011 - Default Building Construction Description

Off-Road Equipment:

- 1 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
- 1 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 1/1/2013 - 2/28/2013 - Type Your Description Here

- 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

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	0.02	0.00	0.00	0.00	0.00	0.00	0.01
Botanic Garden	0.19	0.00	0.00	0.00	0.00	0.00	0.04
TOTALS (lbs/day, unmitigated)	0.21	0.00	0.00	0.00	0.00	0.00	0.05

Operational Settings:

- Does not include correction for passby trips
- Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 80 Season: Summer

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	1.00	0.01 dwelling units		3.00	0.03	0.00
Botanic Garden		0.01 1000 sq ft		25.88	0.26	0.00
					0.29	0.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.7	1.2	98.6	0.2

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	22.9	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	67.9	32.1	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			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	0.0	0.0	0.0	0.0	0.0	0.0
Rural Trip Length (miles)	0.0	0.0	0.0	0.0	0.0	0.0
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Travel Conditions

Residential		Commercial			
Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
			2.0	1.0	97.0

Botanic Garden

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\hgiroux\AppData\Roaming\Urbemis\Version9a\Projects\SBBG Op.urb924

Project Name: SBBG

Project Location: Santa Barbara County APCD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.02	0.21	0.16	0.00	0.00	0.00	255.03
Hearth							
Landscape	0.15	0.02	1.68	0.00	0.01	0.01	3.02
Consumer Products	0.15						
Architectural Coatings	0.19						
TOTALS (lbs/day, unmitigated)	0.51	0.23	1.84	0.00	0.01	0.01	258.05

[Area Source Changes to Defaults](#)

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	0.12	0.14	1.23	0.00	0.18	0.03	92.61
Botanic Garden	1.33	1.69	14.21	0.01	2.10	0.40	1,099.61
TOTALS (lbs/day, unmitigated)	1.45	1.83	15.44	0.01	2.28	0.43	1,192.22

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 75 Season: Summer

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	1.00	4.67	dwelling units	3.00	14.01	101.72
Botanic Garden	8.30	1000	sq ft	25.88	214.80	1,220.95
					228.81	1,322.67

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	46.3	0.9	98.7	0.4
Light Truck < 3750 lbs	16.6	1.8	95.2	3.0
Light Truck 3751-5750 lbs	20.4	0.5	99.5	0.0
Med Truck 5751-8500 lbs	7.5	0.0	100.0	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Lite-Heavy Truck 8501-10,000 lbs	1.5	0.0	73.3	26.7
Lite-Heavy Truck 10,001-14,000 lbs	1.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	27.3	72.7
Heavy-Heavy Truck 33,001-60,000 lbs	0.3	0.0	33.3	66.7
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.7	56.8	43.2	0.0
School Bus	0.2	0.0	0.0	100.0
Motor Home	1.2	0.0	91.7	8.3

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.9	5.6	6.1	5.7	4.1	5.7
Rural Trip Length (miles)	15.0	15.0	15.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)				2.0	1.0	97.0
Botanic Garden						