Appendix C

Air Quality Modeling

11/19/2009 9:59:25 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: L:\ESP\LA Co\LA, City of\09-65030 LA Mangrove Estates EIR\Other\Air Quality\Mangrove.urb924

Project Name: Mangrove

Project Location: Los Angeles County

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

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	12.28	145.59	61.35	0.17	2,370.01	6.44	2,371.26	494.95	5.92	496.10	19,220.48
2010 TOTALS (lbs/day mitigated)	12.28	145.59	61.35	0.17	143.11	5.94	144.05	29.89	5.47	32.97	19,220.48
2011 TOTALS (lbs/day unmitigated)	2.86	23.50	12.97	0.00	2,370.01	1.18	2,371.18	494.95	1.08	496.03	2,371.63
2011 TOTALS (lbs/day mitigated)	2.86	23.50	12.97	0.00	143.11	0.88	143.99	29.89	0.81	30.70	2,371.63
2012 TOTALS (lbs/day unmitigated)	5.18	30.25	100.63	0.15	0.64	1.52	2.17	0.23	1.38	1.60	15,543.51
2012 TOTALS (lbs/day mitigated)	5.18	30.25	100.63	0.15	0.64	1.11	1.75	0.23	1.00	1.23	15,543.51
2013 TOTALS (lbs/day unmitigated)	481.09	27.28	93.78	0.15	0.64	1.38	2.02	0.23	1.24	1.47	15,542.23
2013 TOTALS (lbs/day mitigated)	481.09	27.28	93.78	0.15	0.64	1.01	1.66	0.23	0.91	1.14	15,542.23

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AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	33.64	10.82	13.05	0.00	0.04	0.04	13,291.62

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	125.01	177.73	1,579.26	1.77	290.22	56.44	172,645.39

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	158.65	188.55	1,592.31	1.77	290.26	56.48	185,937.01

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 10/4/2010-11/5/2010 Active Days: 25	12.28	**145.59**	61.35	**0.17**	131.87	**6.44**	138.31	27.50	**5.92**	33.43	**19,220.48**
Demolition 10/04/2010-11/05/2010	12.28	145.59	61.35	0.17	131.87	6.44	138.31	27.50	5.92	33.43	19,220.48
Fugitive Dust	0.00	0.00	0.00	0.00	131.25	0.00	131.25	27.30	0.00	27.30	0.00
Demo Off Road Diesel	1.14	7.68	4.68	0.00	0.00	0.59	0.59	0.00	0.54	0.54	700.30
Demo On Road Diesel	11.10	137.85	55.58	0.17	0.61	5.85	6.46	0.20	5.38	5.58	18,395.84
Demo Worker Trips	0.03	0.06	1.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.34

Time Slice 11/8/2010-12/31/2010 Active Days: 40	3.04	25.05	13.55	0.00	**2,370.01**	1.25	**2,371.26**	**494.95**	1.15	**496.10**	2,371.66
Mass Grading 11/08/2010-08/26/2011	3.04	25.05	13.55	0.00	2,370.01	1.25	2,371.26	494.95	1.15	496.10	2,371.66
Mass Grading Dust	0.00	0.00	0.00	0.00	2,370.00	0.00	2,370.00	494.95	0.00	494.95	0.00
Mass Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.34
Time Slice 1/3/2011-8/26/2011 Active Days: 170	2.86	23.50	12.97	0.00	**2,370.01**	1.18	2,371.18	**494.95**	1.08	496.03	2,371.63
Mass Grading 11/08/2010-08/26/2011	2.86	23.50	12.97	0.00	2,370.01	1.18	2,371.18	494.95	1.08	496.03	2,371.63
Mass Grading Dust	0.00	0.00	0.00	0.00	2,370.00	0.00	2,370.00	494.95	0.00	494.95	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.32
Time Slice 8/29/2011-12/30/2011 Active Days: 90	1.92	11.47	8.73	0.00	0.01	0.99	1.00	0.00	0.91	0.91	1,212.79
Asphalt 08/29/2011-01/06/2012	1.92	11.47	8.73	0.00	0.01	0.99	1.00	0.00	0.91	0.91	1,212.79
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.26	6.91	0.00	0.00	0.98	0.98	0.00	0.90	0.90	979.23
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	16.02
Paving Worker Trips	0.06	0.10	1.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.55

Time Slice 1/2/2012-1/6/2012 Active Days: 5	1.80	10.83	8.54	0.00	0.01	0.92	0.93	0.00	0.85	0.85	1,212.76
Asphalt 08/29/2011-01/06/2012	1.80	10.83	8.54	0.00	0.01	0.92	0.93	0.00	0.85	0.85	1,212.76
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.72	10.64	6.84	0.00	0.00	0.91	0.91	0.00	0.84	0.84	979.23
Paving On Road Diesel	0.01	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.02
Paving Worker Trips	0.05	0.10	1.65	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.52
Time Slice 1/9/2012-12/31/2012 Active Days: 256	5.18	30.25	**100.63**	0.15	0.64	1.52	2.17	0.23	1.38	1.60	15,543.51
Building 01/09/2012-01/11/2013	5.18	30.25	100.63	0.15	0.64	1.52	2.17	0.23	1.38	1.60	15,543.51
Building Off Road Diesel	1.03	7.87	4.56	0.00	0.00	0.49	0.49	0.00	0.45	0.45	893.39
Building Vendor Trips	1.68	17.71	15.12	0.04	0.14	0.75	0.89	0.05	0.68	0.73	4,006.53
Building Worker Trips	2.47	4.67	80.94	0.11	0.50	0.29	0.79	0.18	0.24	0.43	10,643.60
Time Slice 1/1/2013-1/11/2013 Active Days: 9	4.74	27.28	93.78	0.15	0.64	1.38	2.02	0.23	1.24	1.47	15,542.23
Building 01/09/2012-01/11/2013	4.74	27.28	93.78	0.15	0.64	1.38	2.02	0.23	1.24	1.47	15,542.23
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.43	0.43	0.00	0.39	0.39	893.39
Building Vendor Trips	1.53	15.71	13.95	0.04	0.14	0.66	0.80	0.05	0.60	0.65	4,006.61
Building Worker Trips	2.26	4.28	75.35	0.11	0.50	0.29	0.79	0.18	0.24	0.43	10,642.23
Time Slice 2/4/2013-3/29/2013 Active Days: 40	**481.09**	0.42	7.42	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,048.51
Coating 02/04/2013-03/29/2013	481.09	0.42	7.42	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,048.51
Architectural Coating	480.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.22	0.42	7.42	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,048.51

Phase Assumptions

Phase: Demolition 10/4/2010 - 11/5/2010 - Default Demolition Description

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Building Volume Total (cubic feet): 312500

Building Volume Daily (cubic feet): 312500

On Road Truck Travel (VMT): 4340.28

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

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Mass Grading 11/8/2010 - 8/26/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 20000 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

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 8/29/2011 - 1/6/2012 - Default Paving Description

Acres to be Paved: 1

Off-Road Equipment:

4 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 1/9/2012 - 1/11/2013 - Default Building Construction Description

Off-Road Equipment:

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1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

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

Phase: Architectural Coating 2/4/2013 - 3/29/2013 - 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

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 10/4/2010-11/5/2010 Active Days: 25	12.28	**145.59**	61.35	**0.17**	131.87	5.94	137.81	27.50	5.47	32.97	**19,220.48**
Demolition 10/04/2010-11/05/2010	12.28	145.59	61.35	0.17	131.87	5.94	137.81	27.50	5.47	32.97	19,220.48
Fugitive Dust	0.00	0.00	0.00	0.00	131.25	0.00	131.25	27.30	0.00	27.30	0.00
Demo Off Road Diesel	1.14	7.68	4.68	0.00	0.00	0.09	0.09	0.00	0.08	0.08	700.30
Demo On Road Diesel	11.10	137.85	55.58	0.17	0.61	5.85	6.46	0.20	5.38	5.58	18,395.84
Demo Worker Trips	0.03	0.06	1.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.34

Time Slice 11/8/2010-12/31/2010 Active Days: 40	3.04	25.05	13.55	0.00	143.11	0.94	144.05	29.89	0.86	30.75	2,371.66
Mass Grading 11/08/2010-08/26/2011	3.04	25.05	13.55	0.00	143.11	0.94	144.05	29.89	0.86	30.75	2,371.66
Mass Grading Dust	0.00	0.00	0.00	0.00	143.10	0.00	143.10	29.89	0.00	29.89	0.00
Mass Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	0.94	0.94	0.00	0.86	0.86	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.34
Time Slice 1/3/2011-8/26/2011 Active Days: 170	2.86	23.50	12.97	0.00	143.11	0.88	143.99	29.89	0.81	30.70	2,371.63
Mass Grading 11/08/2010-08/26/2011	2.86	23.50	12.97	0.00	143.11	0.88	143.99	29.89	0.81	30.70	2,371.63
Mass Grading Dust	0.00	0.00	0.00	0.00	143.10	0.00	143.10	29.89	0.00	29.89	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	0.88	0.88	0.00	0.81	0.81	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.32
Time Slice 8/29/2011-12/30/2011 Active Days: 90	1.92	11.47	8.73	0.00	0.01	0.16	0.17	0.00	0.14	0.15	1,212.79
Asphalt 08/29/2011-01/06/2012	1.92	11.47	8.73	0.00	0.01	0.16	0.17	0.00	0.14	0.15	1,212.79
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.26	6.91	0.00	0.00	0.15	0.15	0.00	0.13	0.13	979.23
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	16.02
Paving Worker Trips	0.06	0.10	1.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.55

Time Slice 1/2/2012-1/6/2012 Active Days: 5	1.80	10.83	8.54	0.00	0.01	0.15	0.16	0.00	0.13	0.14	1,212.76
Asphalt 08/29/2011-01/06/2012	1.80	10.83	8.54	0.00	0.01	0.15	0.16	0.00	0.13	0.14	1,212.76
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.72	10.64	6.84	0.00	0.00	0.14	0.14	0.00	0.13	0.13	979.23
Paving On Road Diesel	0.01	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.02
Paving Worker Trips	0.05	0.10	1.65	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.52
Time Slice 1/9/2012-12/31/2012 Active Days: 256	5.18	30.25	**100.63**	0.15	0.64	1.11	1.75	0.23	1.00	1.23	15,543.51
Building 01/09/2012-01/11/2013	5.18	30.25	100.63	0.15	0.64	1.11	1.75	0.23	1.00	1.23	15,543.51
Building Off Road Diesel	1.03	7.87	4.56	0.00	0.00	0.07	0.07	0.00	0.07	0.07	893.39
Building Vendor Trips	1.68	17.71	15.12	0.04	0.14	0.75	0.89	0.05	0.68	0.73	4,006.53
Building Worker Trips	2.47	4.67	80.94	0.11	0.50	0.29	0.79	0.18	0.24	0.43	10,643.60
Time Slice 1/1/2013-1/11/2013 Active Days: 9	4.74	27.28	93.78	0.15	0.64	1.01	1.66	0.23	0.91	1.14	15,542.23
Building 01/09/2012-01/11/2013	4.74	27.28	93.78	0.15	0.64	1.01	1.66	0.23	0.91	1.14	15,542.23
Building Off Road Diesel	0.95	7.29	4.48	0.00	0.00	0.06	0.06	0.00	0.06	0.06	893.39
Building Vendor Trips	1.53	15.71	13.95	0.04	0.14	0.66	0.80	0.05	0.60	0.65	4,006.61
Building Worker Trips	2.26	4.28	75.35	0.11	0.50	0.29	0.79	0.18	0.24	0.43	10,642.23
Time Slice 2/4/2013-3/29/2013 Active Days: 40	**481.09**	0.42	7.42	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,048.51
Coating 02/04/2013-03/29/2013	481.09	0.42	7.42	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,048.51
Architectural Coating	480.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.22	0.42	7.42	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,048.51

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Demolition 10/4/2010 - 11/5/2010 - Default Demolition Description

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For Concrete/Industrial Saws, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

The following mitigation measures apply to Phase: Mass Grading 11/8/2010 - 8/26/2011 - Default Mass Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Diesel Particulate Filter (DPF) 3rd Tier mitigation reduces emissions by:

PM10: 25% PM25: 25%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 3rd Tier mitigation reduces emissions by:

PM10: 25% PM25: 25%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 3rd Tier mitigation reduces emissions by:

PM10: 25% PM25: 25%

For Water Trucks, the Diesel Particulate Filter (DPF) 3rd Tier mitigation reduces emissions by:

PM10: 25% PM25: 25%

The following mitigation measures apply to Phase: Paving 8/29/2011 - 1/6/2012 - Default Paving Description

For Cement and Mortar Mixers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

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For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

The following mitigation measures apply to Phase: Building Construction 1/9/2012 - 1/11/2013 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

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	0.80	10.74	6.87	0.00	0.02	0.02	13,280.38
Hearth - No Summer Emissions							
Landscape	0.49	0.08	6.18	0.00	0.02	0.02	11.24
Consumer Products	27.09						
Architectural Coatings	5.26						
TOTALS (lbs/day, unmitigated)	33.64	10.82	13.05	0.00	0.04	0.04	13,291.62

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments high rise	29.01	37.92	346.37	0.38	61.93	12.06	37,045.70
Regnl shop. center	54.25	81.73	713.65	0.81	133.09	25.87	78,930.25
General office building	37.14	51.23	459.05	0.51	84.03	16.34	50,038.12
Government (civic center)	4.61	6.85	60.19	0.07	11.17	2.17	6,631.32
TOTALS (lbs/day, unmitigated)	125.01	177.73	1,579.26	1.77	290.22	56.44	172,645.39

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 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
Apartments high rise	1.00	6.72	dwelling units	528.00	3,548.16	35,846.35
Regnl shop. center		42.94	1000 sq ft	200.00	8,588.00	77,060.12
General office building		9.21	1000 sq ft	519.00	4,779.99	48,648.35
Government (civic center)		27.92	1000 sq ft	25.00	698.00	6,466.97
					17,614.15	168,021.79

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.5	0.7	99.1	0.2
Light Truck < 3750 lbs	6.8	2.9	94.2	2.9
Light Truck 3751-5750 lbs	22.9	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.0	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.5	0.0	86.7	13.3
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	2.3	65.2	34.8	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	32.9	18.0	49.1			

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0
General office building				35.0	17.5	47.5
Government (civic center)				10.0	5.0	85.0

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: L:\ESP\LA Co\LA, City of\09-65030 LA Mangrove Estates EIR\Other\Air Quality\Mangrove.urb924

Project Name: Mangrove

Project Location: Los Angeles County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Greenhouse Gas Emission Worksheet

Mobile Emissions Mangrove

From URBEMIS 2007 Vehicle Fleet Mix Output:

Daily Vehicle Miles Traveled (VMT): 168,022 (Net: Proposed - Existing)

Annual VMT: 61,328,030

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)**	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	53.6%	0.04	0.02144	0.04	0.02144
Light Truck < 3750 lbs	6.8%	0.05	0.0034	0.06	0.00408
Light Truck 3751-5750 lbs	22.8%	0.05	0.0114	0.06	0.01368
Med Truck 5751-8500 lbs	10.0%	0.12	0.012	0.2	0.02
Lite-Heavy Truck 8501-10,000 lbs	1.5%	0.12	0.0018	0.2	0.003
Lite-Heavy Truck 10,001-14,000 lbs	0.5%	0.09	0.00045	0.125	0.000625
Med-Heavy Truck 14,001-33,000 lbs	0.9%	0.06	0.00054	0.05	0.00045
Heavy-Heavy Truck 33,001-60,000 lbs	0.5%	0.06	0.0003	0.05	0.00025
Other Bus	0.1%	0.06	0.00006	0.05	0.00005
Urban Bus	0.1%	0.06	0.00006	0.05	0.00005
Motorcycle	2.3%	0.09	0.00207	0.01	0.00023
School Bus	0.1%	0.06	0.00006	0.05	0.00005
Motor Home	0.8%	0.09	0.00072	0.125	0.001
Total			**0.0543**		**0.064905**

Total Emissions (metric tons) =
Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4

N2O 21 GWP

1 ton (short, US) = 0.90718474 metric to 310 GWP

Annual Mobile Emissions:

	Total Emissions		Total CO2e units	
CO2 Emissions***:	**30,514.0000**	tons CO2	**27,682**	metric tons CO2e
CH4 Emissions:	**3.3301**	metric tons CH4	**3**	metric tons CO2e
N20 Emissions:	**3.9805**	metric tons N2O	**0**	metric tons CO2e
	Project Total:		***27,685***	***metric tons CO2e***

References

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).
Assume Model year 2000-present, gasoline fueled.

** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 2.2, March 2007.

*** From URBEMIS 2007 results for mobile sources

Greenhouse Gas Emission Worksheet

Operational Emissions Mangrove

Electricity Generation	**(kWH)**		**Project units**	**Project Usage**
Residential Consumption*	7,000	per unit	528	3,696,000
Office Consumption**	16,800	per KSF per year	500	8,400,000
Retail Consumption**	11,300	per KSF per year	244	2,757,200
Food Service**	45,700	per KSF per year	0	0
			Total	**11,157,200**

Total Project Annual KWh: **11,157,200** kWH/year
Project Annual MWh: **11,157** MWH/year

Emission Factors:***

CO2	724.12	lbs/MWh/year
CH4	0.0302	lbs/MWh/year
N2O	0.0081	lbs/MWh/year

Total Annual Operational Emissions (metric tons) =
(Electricity Use (kWh) x EF)/2,204.62 lbs/metric ton

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)**

CH4	21	GWP
N2O	310	GWP
1 ton (short, US) =	0.90718474	metric ton

Annual Operational Emissions:

	Total Emissions		**Total CO2e Units**	
CO2 emissions, electricity:	4,039.5758	tons	**3,665**	metric tons CO2e
CO2 emissions*****:	2,426.0000	tons	**2,201**	metric tons CO2e
CH4 emissions:	0.1528	metric tons	**3**	metric tons CO2e
N2O emissions:	0.0409	metric tons	**13**	metric tons CO2e
		Project Total	***5,881***	***metric tons CO2e***

References

* Table C.1: EPA eGRID CO2 Electricity Emission Factors by Subregion (Year 2000)
** Generation Factor Source: Energy Information Administration, 2008. 2003 CBECS Detailed Tables
*** Table C.2: Carbon Dioxide, Methane and Nitrous Oxide Electricity Emission Factors by eGRID Subregion in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
**** SAR, 1996 conversion factors as reported in Table C.1 of CCAR, January 2009
***** URBEMIS Annual Emissions output for Area Source emissions; includes natural gas combustion for heating.