APPENDIX A
URBEMIS AIR QUALITY CALCULATIONS

Prepared by:

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\BonTerra User\My Documents\Current\Fullerton Community Center\Air quality\Urbemis\Construction_and_FutureOp 062910.urb924
Project Name: Fullerton Community Center

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:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2011 TOTALS (lbs/day unmitigated)	2.86	23.49	12.88	0.01	20.01	1.18	21.18	4.18	1.08	5.26
2011 TOTALS (lbs/day mitigated)	2.86	23.49	12.88	0.01	3.27	1.18	4.44	0.68	1.08	1.76
2012 TOTALS (lbs/day unmitigated)	62.66	19.86	16.41	0.01	0.04	1.44	1.49	0.02	1.32	1.34
2012 TOTALS (lbs/day mitigated)	62.66	19.86	16.41	0.01	0.04	1.44	1.49	0.02	1.32	1.34

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	0.49	0.40	1.87	0.00	0.01	0.01

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	0.49	0.40	1.87	0.00	0.01	0.01

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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
Time Slice 6/6/2011-7/29/2011 Active Days: 40	1.24	9.40	6.28	0.00	2.37	0.63	3.00	0.49	0.58	1.08
Demolition 06/06/2011-07/29/2011	1.24	9.40	6.28	0.00	2.37	0.63	3.00	0.49	0.58	1.08
Fugitive Dust	0.00	0.00	0.00	0.00	2.35	0.00	2.35	0.49	0.00	0.49
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50
Demo On Road Diesel	0.16	2.12	0.78	0.00	0.01	0.08	0.09	0.00	0.08	0.08
Demo Worker Trips	0.03	0.05	0.92	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 8/1/2011-8/26/2011 Active Days: 20	2.86	**23.49**	12.88	0.00	**20.01**	1.18	**21.18**	**4.18**	1.08	**5.26**
Fine Grading 08/01/2011-08/26/2011	2.86	23.49	12.88	0.00	20.01	1.18	21.18	4.18	1.08	5.26
Fine Grading Dust	0.00	0.00	0.00	0.00	20.00	0.00	20.00	4.18	0.00	4.18
Fine Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.05	0.92	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 8/29/2011-9/16/2011 Active Days: 15	2.02	14.87	9.92	0.00	0.01	0.94	0.94	0.00	0.86	0.87
Trenching 08/29/2011-09/16/2011	2.02	14.87	9.92	0.00	0.01	0.94	0.94	0.00	0.86	0.87
Trenching Off Road Diesel	2.00	14.82	9.00	0.00	0.00	0.94	0.94	0.00	0.86	0.86
Trenching Worker Trips	0.03	0.05	0.92	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 9/19/2011-12/30/2011 Active Days: 75	1.14	8.36	7.93	0.01	0.03	0.53	0.55	0.01	0.48	0.49
Building 09/19/2011-08/03/2012	1.14	8.36	7.93	0.01	0.03	0.53	0.55	0.01	0.48	0.49
Building Off Road Diesel	0.99	7.62	4.10	0.00	0.00	0.49	0.49	0.00	0.45	0.45

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Building Vendor Trips	0.05	0.54	0.45	0.00	0.00	0.02	0.03	0.00	0.02	0.02
Building Worker Trips	0.10	0.19	3.38	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Time Slice 1/2/2012-1/31/2012 Active Days: 22	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building 09/19/2011-08/03/2012	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building Off Road Diesel	0.92	7.06	3.99	0.00	0.00	0.44	0.44	0.00	0.40	0.40
Building Vendor Trips	0.04	0.48	0.42	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Building Worker Trips	0.09	0.18	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Time Slice 2/1/2012-2/22/2012 Active Days: 16	3.36	19.86	**16.41**	**0.01**	0.04	**1.44**	1.49	0.02	**1.32**	1.34
Asphalt 02/01/2012-02/22/2012	2.30	12.14	8.86	0.00	0.02	0.97	0.99	0.01	0.89	0.90
Paving Off-Gas	0.43	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
Paving On Road Diesel	0.11	1.42	0.52	0.00	0.01	0.05	0.06	0.00	0.05	0.05
Paving Worker Trips	0.04	0.08	1.49	0.00	0.01	0.01	0.02	0.00	0.00	0.01
Building 09/19/2011-08/03/2012	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building Off Road Diesel	0.92	7.06	3.99	0.00	0.00	0.44	0.44	0.00	0.40	0.40
Building Vendor Trips	0.04	0.48	0.42	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Building Worker Trips	0.09	0.18	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Time Slice 2/23/2012-6/29/2012 Active Days: 92	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building 09/19/2011-08/03/2012	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building Off Road Diesel	0.92	7.06	3.99	0.00	0.00	0.44	0.44	0.00	0.40	0.40
Building Vendor Trips	0.04	0.48	0.42	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Building Worker Trips	0.09	0.18	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Time Slice 7/2/2012-7/27/2012 Active Days: 20	**62.66**	7.76	8.16	0.01	0.03	0.47	0.50	0.01	0.43	0.44

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Building 09/19/2011-08/03/2012	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building Off Road Diesel	0.92	7.06	3.99	0.00	0.00	0.44	0.44	0.00	0.40	0.40
Building Vendor Trips	0.04	0.48	0.42	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Building Worker Trips	0.09	0.18	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Coating 07/02/2012-07/27/2012	61.60	0.03	0.61	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	61.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.61	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Time Slice 7/30/2012-8/3/2012 Active Days: 5	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building 09/19/2011-08/03/2012	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building Off Road Diesel	0.92	7.06	3.99	0.00	0.00	0.44	0.44	0.00	0.40	0.40
Building Vendor Trips	0.04	0.48	0.42	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Building Worker Trips	0.09	0.18	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.02

Phase Assumptions

Phase: Demolition 6/6/2011 - 7/29/2011 - Default Demolition Description

Building Volume Total (cubic feet): 560000

Building Volume Daily (cubic feet): 5600

On Road Truck Travel (VMT): 77.78

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: Fine Grading 8/1/2011 - 8/26/2011 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 6.2

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Default

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20 lbs per acre-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: Trenching 8/29/2011 - 9/16/2011 - Default Trenching Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 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 3 hours per day

Phase: Paving 2/1/2012 - 2/22/2012 - Default Paving Description

Acres to be Paved: 2.6

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 9/19/2011 - 8/3/2012 - Default Building Construction Description

Off-Road Equipment:

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

1 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 7/2/2012 - 7/27/2012 - Default Architectural Coating Description

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

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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
Time Slice 6/6/2011-7/29/2011 Active Days: 40	1.24	9.40	6.28	0.00	2.37	0.63	3.00	0.49	0.58	1.08
Demolition 06/06/2011-07/29/2011	1.24	9.40	6.28	0.00	2.37	0.63	3.00	0.49	0.58	1.08
Fugitive Dust	0.00	0.00	0.00	0.00	2.35	0.00	2.35	0.49	0.00	0.49
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50
Demo On Road Diesel	0.16	2.12	0.78	0.00	0.01	0.08	0.09	0.00	0.08	0.08
Demo Worker Trips	0.03	0.05	0.92	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 8/1/2011-8/26/2011 Active Days: 20	2.86	**23.49**	12.88	0.00	3.27	1.18	4.44	0.68	1.08	1.76
Fine Grading 08/01/2011-08/26/2011	2.86	23.49	12.88	0.00	3.27	1.18	4.44	0.68	1.08	1.76
Fine Grading Dust	0.00	0.00	0.00	0.00	3.26	0.00	3.26	0.68	0.00	0.68
Fine Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.05	0.92	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 8/29/2011-9/16/2011 Active Days: 15	2.02	14.87	9.92	0.00	0.01	0.94	0.94	0.00	0.86	0.87

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Trenching 08/29/2011-09/16/2011	2.02	14.87	9.92	0.00	0.01	0.94	0.94	0.00	0.86	0.87
Trenching Off Road Diesel	2.00	14.82	9.00	0.00	0.00	0.94	0.94	0.00	0.86	0.86
Trenching Worker Trips	0.03	0.05	0.92	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 9/19/2011-12/30/2011 Active Days: 75	1.14	8.36	7.93	0.01	0.03	0.53	0.55	0.01	0.48	0.49
Building 09/19/2011-08/03/2012	1.14	8.36	7.93	0.01	0.03	0.53	0.55	0.01	0.48	0.49
Building Off Road Diesel	0.99	7.62	4.10	0.00	0.00	0.49	0.49	0.00	0.45	0.45
Building Vendor Trips	0.05	0.54	0.45	0.00	0.00	0.02	0.03	0.00	0.02	0.02
Building Worker Trips	0.10	0.19	3.38	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Time Slice 1/2/2012-1/31/2012 Active Days: 22	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building 09/19/2011-08/03/2012	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building Off Road Diesel	0.92	7.06	3.99	0.00	0.00	0.44	0.44	0.00	0.40	0.40
Building Vendor Trips	0.04	0.48	0.42	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Building Worker Trips	0.09	0.18	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Time Slice 2/1/2012-2/22/2012 Active Days: 16	3.36	19.86	**16.41**	**0.01**	0.04	**1.44**	1.49	0.02	**1.32**	1.34
Asphalt 02/01/2012-02/22/2012	2.30	12.14	8.86	0.00	0.02	0.97	0.99	0.01	0.89	0.90
Paving Off-Gas	0.43	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
Paving On Road Diesel	0.11	1.42	0.52	0.00	0.01	0.05	0.06	0.00	0.05	0.05
Paving Worker Trips	0.04	0.08	1.49	0.00	0.01	0.01	0.02	0.00	0.00	0.01
Building 09/19/2011-08/03/2012	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building Off Road Diesel	0.92	7.06	3.99	0.00	0.00	0.44	0.44	0.00	0.40	0.40
Building Vendor Trips	0.04	0.48	0.42	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Building Worker Trips	0.09	0.18	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.02

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Time Slice 2/23/2012-6/29/2012 Active Days: 92	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building 09/19/2011-08/03/2012	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building Off Road Diesel	0.92	7.06	3.99	0.00	0.00	0.44	0.44	0.00	0.40	0.40
Building Vendor Trips	0.04	0.48	0.42	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Building Worker Trips	0.09	0.18	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Time Slice 7/2/2012-7/27/2012 Active Days: 20	**62.66**	7.76	8.16	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building 09/19/2011-08/03/2012	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building Off Road Diesel	0.92	7.06	3.99	0.00	0.00	0.44	0.44	0.00	0.40	0.40
Building Vendor Trips	0.04	0.48	0.42	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Building Worker Trips	0.09	0.18	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Coating 07/02/2012-07/27/2012	61.60	0.03	0.61	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	61.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.61	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Time Slice 7/30/2012-8/3/2012 Active Days: 5	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building 09/19/2011-08/03/2012	1.06	7.72	7.55	0.01	0.03	0.47	0.50	0.01	0.43	0.44
Building Off Road Diesel	0.92	7.06	3.99	0.00	0.00	0.44	0.44	0.00	0.40	0.40
Building Vendor Trips	0.04	0.48	0.42	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Building Worker Trips	0.09	0.18	3.14	0.00	0.02	0.01	0.03	0.01	0.01	0.02

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 8/1/2011 - 8/26/2011 - Default Fine Site Grading/Excavation Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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

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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 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	0.03	0.38	0.32	0.00	0.00	0.00
Hearth						
Landscape	0.12	0.02	1.55	0.00	0.01	0.01
Consumer Products	0.00					
Architectural Coatings	0.34					
TOTALS (lbs/day, unmitigated)	0.49	0.40	1.87	0.00	0.01	0.01

Area Source Changes to Defaults