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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: R:\ES Information\Air Quality\Jobs\Chapman\Chapman J001 rev6 083111.urb924

Project Name: Chapman 083111

Project Location: Orange County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Changes in demolition fugitive dust made because URBEMIS does not include dust reduction measures in the demolition phase

Yellow highlight indicates data used for LST analysis

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 9/3/2012-10/12/2012	2.70	20.86	14.48	0.01	7.59	1.22	8.81	1.58	1.12	2.71
Demolition 09/03/2012-10/26/2012	2.70	20.86	14.48	0.01	7.59	1.22	8.81	1.58	1.12	2.71
Fugitive Dust	0.00	0.00	0.00	0.00	7.56	0.00	7.56	1.57	0.00	1.57
Demo Off Road Diesel	2.42	17.84	11.90	0.00	0.00	1.10	1.10	0.00	1.02	1.02
Demo On Road Diesel	0.23	2.93	1.08	0.00	0.02	0.11	0.13	0.01	0.10	0.11
Demo Worker Trips	0.04	0.08	1.49	0.00	0.01	0.01	0.02	0.00	0.00	0.01
Time Slice 10/15/2012-10/26/2012	9.86	**89.36**	**49.50**	**0.06**	7.09	**4.29**	11.38	2.92	**3.95**	6.87
Demolition 09/03/2012-10/26/2012	2.70	20.86	14.48	0.01	0.79	1.22	2.01	1.58	1.12	2.71
Fugitive Dust	0.00	0.00	0.00	0.00	0.76	0.00	0.76	0.16	0.00	0.16
Demo Off Road Diesel	2.42	17.84	11.90	0.00	0.00	1.10	1.10	0.00	1.02	1.02
Demo On Road Diesel	0.23	2.93	1.08	0.00	0.02	0.11	0.13	0.01	0.10	0.11
Demo Worker Trips	0.04	0.08	1.49	0.00	0.01	0.01	0.02	0.00	0.00	0.01
Mass Grading 10/15/2012-	7.17	68.51	35.02	0.05	6.30	3.07	9.37	1.34	2.82	4.16
Mass Grading Dust	0.00	0.00	0.00	0.00	6.12	0.00	6.12	1.28	0.00	1.28
Mass Grading Off Road Diesel	4.87	39.30	22.76	0.00	0.00	1.95	1.95	0.00	1.80	1.80
Mass Grading On Road Diesel	2.25	29.13	10.77	0.05	0.17	1.11	1.28	0.06	1.02	1.08
Mass Grading Worker Trips	0.04	0.08	1.49	0.00	0.01	0.01	0.02	0.00	0.00	0.01
Time Slice 10/29/2012-11/2/2012	8.14	74.75	39.95	0.05	6.30	3.62	9.92	1.34	3.33	4.67
Mass Grading 10/15/2012-	7.17	68.51	35.02	0.05	6.30	3.07	9.37	1.34	2.82	4.16
Mass Grading Dust	0.00	0.00	0.00	0.00	6.12	0.00	6.12	1.28	0.00	1.28
Mass Grading Off Road Diesel	4.87	39.30	22.76	0.00	0.00	1.95	1.95	0.00	1.80	1.80
Mass Grading On Road Diesel	2.25	29.13	10.77	0.05	0.17	1.11	1.28	0.06	1.02	1.08
Mass Grading Worker Trips	0.04	0.08	1.49	0.00	0.01	0.01	0.02	0.00	0.00	0.01
Trenching 10/29/2012-12/21/2012	0.98	6.24	4.93	0.00	0.00	0.55	0.55	0.00	0.50	0.50

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Trenching Off Road Diesel	0.96	6.22	4.50	0.00	0.00	0.54	0.54	0.00	0.50	0.50
Trenching Worker Trips	0.01	0.02	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 11/5/2012-12/21/2012	0.98	6.24	4.93	0.00	0.00	0.55	0.55	0.00	0.50	0.50
Trenching 10/29/2012-12/21/2012	0.98	6.24	4.93	0.00	0.00	0.55	0.55	0.00	0.50	0.50
Trenching Off Road Diesel	0.96	6.22	4.50	0.00	0.00	0.54	0.54	0.00	0.50	0.50
Trenching Worker Trips	0.01	0.02	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/7/2013-12/31/2013	3.59	19.41	18.19	0.01	0.05	1.15	1.20	0.02	1.05	1.07
Building 01/07/2013-02/27/2015	3.59	19.41	18.19	0.01	0.05	1.15	1.20	0.02	1.05	1.07
Building Off Road Diesel	3.35	18.28	11.84	0.00	0.00	1.09	1.09	0.00	1.00	1.00
Building Vendor Trips	0.08	0.82	0.74	0.00	0.01	0.03	0.04	0.00	0.03	0.03
Building Worker Trips	0.16	0.31	5.62	0.01	0.04	0.02	0.07	0.02	0.02	0.04
Time Slice 1/1/2014-5/2/2014 Active	3.30	17.97	17.33	0.01	0.05	1.01	1.06	0.02	0.93	0.95
Building 01/07/2013-02/27/2015	3.30	17.97	17.33	0.01	0.05	1.01	1.06	0.02	0.93	0.95
Building Off Road Diesel	3.09	16.96	11.41	0.00	0.00	0.96	0.96	0.00	0.88	0.88
Building Vendor Trips	0.07	0.72	0.68	0.00	0.01	0.03	0.04	0.00	0.03	0.03
Building Worker Trips	0.15	0.29	5.24	0.01	0.04	0.02	0.07	0.02	0.02	0.04
Time Slice 5/5/2014-5/9/2014 Active	4.38	23.60	21.67	0.01	0.06	1.44	1.50	0.02	1.33	1.35
Asphalt 05/05/2014-05/09/2014	1.07	5.63	4.34	0.00	0.01	0.43	0.44	0.00	0.40	0.40
Paving Off-Gas	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.76	4.97	3.73	0.00	0.00	0.40	0.40	0.00	0.37	0.37
Paving On Road Diesel	0.05	0.64	0.24	0.00	0.00	0.02	0.03	0.00	0.02	0.02
Paving Worker Trips	0.01	0.02	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/07/2013-02/27/2015	3.30	17.97	17.33	0.01	0.05	1.01	1.06	0.02	0.93	0.95
Building Off Road Diesel	3.09	16.96	11.41	0.00	0.00	0.96	0.96	0.00	0.88	0.88
Building Vendor Trips	0.07	0.72	0.68	0.00	0.01	0.03	0.04	0.00	0.03	0.03
Building Worker Trips	0.15	0.29	5.24	0.01	0.04	0.02	0.07	0.02	0.02	0.04
Time Slice 5/12/2014-12/31/2014	3.30	17.97	17.33	0.01	0.05	1.01	1.06	0.02	0.93	0.95
Building 01/07/2013-02/27/2015	3.30	17.97	17.33	0.01	0.05	1.01	1.06	0.02	0.93	0.95
Building Off Road Diesel	3.09	16.96	11.41	0.00	0.00	0.96	0.96	0.00	0.88	0.88
Building Vendor Trips	0.07	0.72	0.68	0.00	0.01	0.03	0.04	0.00	0.03	0.03
Building Worker Trips	0.15	0.29	5.24	0.01	0.04	0.02	0.07	0.02	0.02	0.04
Time Slice 1/1/2015-2/27/2015 Active	3.03	16.55	16.56	0.01	0.05	0.95	1.00	0.02	0.87	0.89
Building 01/07/2013-02/27/2015	3.03	16.55	16.56	0.01	0.05	0.95	1.00	0.02	0.87	0.89
Building Off Road Diesel	2.83	15.66	11.05	0.00	0.00	0.90	0.90	0.00	0.83	0.83
Building Vendor Trips	0.06	0.63	0.63	0.00	0.01	0.03	0.03	0.00	0.02	0.03
Building Worker Trips	0.14	0.26	4.88	0.01	0.04	0.02	0.07	0.02	0.02	0.04
Time Slice 3/2/2015-5/29/2015 Active	**36.46**	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating 03/02/2015-05/29/2015	36.46	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	36.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Coating Worker Trips	0.01	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 10/15/2012 - 11/2/2012 - 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 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 Pave all haul roads mitigation reduces emissions by:

PM10: 99% PM25: 99%

Phase Assumptions

Phase: Demolition 9/3/2012 - 10/26/2012 - Default Demolition Description

Building Volume Total (cubic feet): 324000

Building Volume Daily (cubic feet): 18000

On Road Truck Travel (VMT): 120.83

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

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

2 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 10/15/2012 - 11/2/2012 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 4.04

Maximum Daily Acreage Disturbed: 1.01

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1200 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 1200

Off-Road Equipment:

2 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 6 hours per day

2 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 4 hours per day

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Phase: Trenching 10/29/2012 - 12/21/2012 - Default Trenching Description
Off-Road Equipment:
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 5/5/2014 - 5/9/2014 - Default Paving Description
Acres to be Paved: 0.48
Off-Road Equipment:
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 1/7/2013 - 2/27/2015 - Default Building Construction Description
Off-Road Equipment:
2 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Generator Sets (49 hp) operating at a 0.74 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
3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 3/2/2015 - 5/29/2015 - 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

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Summary Report for Summer Emissions (Pounds/Day)

File Name: R:\ES Information\Air Quality\Jobs\Chapman\Chapman J001 rev6 083111.urb924

Project Name: Chapman 083111

Project Location: Orange County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2012 TOTALS (lbs/day unmitigated)	9.86	89.36	49.50	0.06	159.47	4.29	163.76	33.32	3.95	37.27
2012 TOTALS (lbs/day mitigated)	9.86	89.36	49.50	0.06	7.09	4.29	11.38	2.92	3.95	6.87
2013 TOTALS (lbs/day unmitigated)	3.59	19.41	18.19	0.01	0.05	1.15	1.20	0.02	1.05	1.07
2013 TOTALS (lbs/day mitigated)	3.59	19.41	18.19	0.01	0.05	1.15	1.20	0.02	1.05	1.07
2014 TOTALS (lbs/day unmitigated)	4.38	23.60	21.67	0.01	0.06	1.44	1.50	0.02	1.33	1.35
2014 TOTALS (lbs/day mitigated)	4.38	23.60	21.67	0.01	0.06	1.44	1.50	0.02	1.33	1.35
2015 TOTALS (lbs/day unmitigated)	36.46	16.55	16.56	0.01	0.05	0.95	1.00	0.02	0.87	0.89
2015 TOTALS (lbs/day mitigated)	36.46	16.55	16.56	0.01	0.05	0.95	1.00	0.02	0.87	0.89

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	0.82	0.76	2.17	0.00	0.01	0.01

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	5.24	6.33	63.33	0.10	16.84	3.25

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	6.06	7.09	65.50	0.10	16.85	3.26

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Summary Report for Winter Emissions (Pounds/Day)

File Name: R:\ES Information\Air Quality\Jobs\Chapman\Chapman J001 rev6 083111.urb924

Project Name: Chapman 083111

Project Location: Orange County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5	PM2.5
2012 TOTALS (lbs/day unmitigated)	9.86	89.36	49.50	0.06	159.47	4.29	163.76	33.32	3.95	37.27
2012 TOTALS (lbs/day mitigated)	9.86	89.36	49.50	0.06	7.09	4.29	11.38	2.92	3.95	6.87
2013 TOTALS (lbs/day unmitigated)	3.59	19.41	18.19	0.01	0.05	1.15	1.20	0.02	1.05	1.07
2013 TOTALS (lbs/day mitigated)	3.59	19.41	18.19	0.01	0.05	1.15	1.20	0.02	1.05	1.07
2014 TOTALS (lbs/day unmitigated)	4.38	23.60	21.67	0.01	0.06	1.44	1.50	0.02	1.33	1.35
2014 TOTALS (lbs/day mitigated)	4.38	23.60	21.67	0.01	0.06	1.44	1.50	0.02	1.33	1.35
2015 TOTALS (lbs/day unmitigated)	36.46	16.55	16.56	0.01	0.05	0.95	1.00	0.02	0.87	0.89
2015 TOTALS (lbs/day mitigated)	36.46	16.55	16.56	0.01	0.05	0.95	1.00	0.02	0.87	0.89

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.70	0.74	0.62	0.00	0.00	0.00	884.80

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	5.60	7.67	60.15	0.08	16.84	3.25	8,930.85

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6.30	8.41	60.77	0.08	16.84	3.25	9,815.65

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Detail Report for Summer Area Source Unmitigated Emissions (Pounds/Day)

File Name: R:\ES Information\Air Quality\Jobs\Chapman\Urbemis\Chapman J001 rev6 083111.urb924

Project Name: Chapman 083111

Project Location: Orange County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas Hearth	0.05	0.74	0.62	0.00	0.00	0.00
Landscape	0.12	0.02	1.55	0.00	0.01	0.01
Consumer Products						
Architectural Coatings	0.65					
TOTALS (lbs/day, unmitigated)	0.82	0.76	2.17	0.00	0.01	0.01

Area Source Changes to Defaults

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Detail Report for Winter Area Source Unmitigated Emissions (Pounds/Day)

File Name: R:\ES Information\Air Quality\Jobs\Chapman\Urbemis\Chapman J001 rev6 083111.urb924

Project Name: Chapman 083111

Project Location: Orange County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	0.05	0.74	0.62	0.00	0.00	0.00
Hearth						
Landscaping - No Winter						
Consumer Products						
Architectural Coatings	0.65					
TOTALS (lbs/day, unmitigated)	0.70	0.74	0.62	0.00	0.00	0.00

Area Source Changes to Defaults

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Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: R:\ES Information\Air Quality\Jobs\Chapman\Chapman J001 rev6 083111.urb924

Project Name: Chapman 083111

Project Location: Orange County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Performing Arts Center	5.24	6.33	63.33	0.10	16.84	3.25	9,903.94
TOTALS (lbs/day, unmitigated)	5.24	6.33	63.33	0.10	16.84	3.25	9,903.94

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 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
Performing Arts Center		9.85	1000 sq ft	110.60	1,089.41	9,775.28
					1,089.41	9,775.28

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.8	0.2	99.6	0.2
Light Truck < 3750 lbs	6.9	0.0	98.6	1.4
Light Truck 3751-5750 lbs	24.2	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
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	0.2	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	51.7	48.3	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			
% of Trips - Commercial (by land use)						
Performing Arts Center				2.0	1.0	97.0

Operational Changes to Defaults

Chapman												
Calculation of LST Thresholds												
Orange - SRA 17												
				acre	2	acre		5	acre		4.04	acre
				feet	82			82				
				meters	25.0	25	50	25.0	25	50		
					interpolated for distance	from LST tables		interpolated for distance	from LST tables			
				Nox	115	115	114	183	183	167		
				CO	715	715	1041	1253	1253	1734		
				PM10	6.0	6	19	13.0	13	39		
				PM2.5	4.0	4	6	7.0	7	9		
					No interpolation for distance on this project						Interpolated for area	
					115			183			161	
					715			1253			1081	
					6.0			13.0			10.8	
					4.0			7.0			6.0	
transfer thresholds to report												
Maximum daily emissions												
LST Thresholds	161	1081	10.8	6.0								
Exceed threshold?												