Appendix A:
Air Quality Modeling Output

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: S:\Projects\11540011 Folsom Prison Expansion\AQ\Modeling\SAC Folsom_2010_07_21.urb924

Project Name: SAC Folsom

Project Location: Sacramento County AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	6.07	47.25	27.60	0.01	20.99	2.73	23.72	4.39	2.51	6.90	5,004.76
2012 TOTALS (lbs/day unmitigated)	18.82	41.21	26.72	0.01	20.93	2.50	23.43	4.38	2.30	6.67	4,679.70

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.23	0.13	1.65	0.00	0.01	0.01	140.62

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2.09	2.22	26.19	0.03	4.30	0.83	2,705.83

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2.32	2.35	27.84	0.03	4.31	0.84	2,846.45

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

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Time Slice 12/1/2011-12/15/2011 Active Days: 11	5.92	**47.25**	**27.60**	0.00	20.98	2.55	23.53	4.38	2.34	6.73	**5,004.76**
Demolition 12/01/2011-12/31/2011	1.08	7.31	5.59	0.00	0.06	0.55	0.61	0.01	0.51	0.52	819.36
Fugitive Dust	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.01	0.00	0.01	0.00
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50	700.30
Demo On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
Demo Worker Trips	0.03	0.04	0.99	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.73
Fine Grading 12/01/2011-01/12/2012	2.86	23.48	12.95	0.00	20.91	1.17	22.09	4.37	1.08	5.45	2,359.04
Fine Grading Dust	0.00	0.00	0.00	0.00	20.91	0.00	20.91	4.37	0.00	4.37	0.00
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	2,247.32
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	0.00
Fine Grading Worker Trips	0.03	0.04	0.99	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.73
Trenching 12/01/2011-12/15/2011	1.98	16.46	9.06	0.00	0.00	0.82	0.83	0.00	0.76	0.76	1,826.36
Trenching Off Road Diesel	1.95	16.42	8.07	0.00	0.00	0.82	0.82	0.00	0.76	0.76	1,714.64
Trenching Worker Trips	0.03	0.04	0.99	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.73

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Time Slice 12/16/2011-12/28/2011 Active Days: 9	3.94	30.79	18.53	0.00	20.98	1.73	22.70	4.38	1.59	5.97	3,178.40
Demolition 12/01/2011-12/31/2011	1.08	7.31	5.59	0.00	0.06	0.55	0.61	0.01	0.51	0.52	819.36
Fugitive Dust	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.01	0.00	0.01	0.00
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50	700.30
Demo On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
Demo Worker Trips	0.03	0.04	0.99	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.73
Fine Grading 12/01/2011-01/12/2012	2.86	23.48	12.95	0.00	20.91	1.17	22.09	4.37	1.08	5.45	2,359.04
Fine Grading Dust	0.00	0.00	0.00	0.00	20.91	0.00	20.91	4.37	0.00	4.37	0.00
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	2,247.32
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	0.00
Fine Grading Worker Trips	0.03	0.04	0.99	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.73

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Time Slice 12/29/2011-12/30/2011 Active Days: 2	6.07	42.68	27.37	0.01	**20.99**	**2.73**	**23.72**	**4.39**	**2.51**	**6.90**	4,452.29
Asphalt 12/29/2011-01/12/2012	2.13	11.90	8.84	0.00	0.01	1.00	1.02	0.00	0.92	0.93	1,273.89
Paving Off-Gas	0.22	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	0.04	0.57	0.20	0.00	0.00	0.02	0.03	0.00	0.02	0.02	99.14
Paving Worker Trips	0.05	0.07	1.73	0.00	0.01	0.00	0.01	0.00	0.00	0.01	195.52
Demolition 12/01/2011-12/31/2011	1.08	7.31	5.59	0.00	0.06	0.55	0.61	0.01	0.51	0.52	819.36
Fugitive Dust	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.01	0.00	0.01	0.00
Demo Off Road Diesel	1.05	7.22	4.58	0.00	0.00	0.55	0.55	0.00	0.50	0.50	700.30
Demo On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
Demo Worker Trips	0.03	0.04	0.99	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.73
Fine Grading 12/01/2011-01/12/2012	2.86	23.48	12.95	0.00	20.91	1.17	22.09	4.37	1.08	5.45	2,359.04
Fine Grading Dust	0.00	0.00	0.00	0.00	20.91	0.00	20.91	4.37	0.00	4.37	0.00
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	2,247.32
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	0.00
Fine Grading Worker Trips	0.03	0.04	0.99	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.73

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Time Slice 1/2/2012-1/11/2012 Active Days: 8	4.73	33.19	21.03	0.00	20.93	2.01	22.94	4.37	1.85	6.22	3,633.10
Asphalt 12/29/2011-01/12/2012	2.02	11.21	8.61	0.00	0.01	0.93	0.95	0.00	0.86	0.86	1,274.00
Paving Off-Gas	0.22	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	0.04	0.50	0.18	0.00	0.00	0.02	0.02	0.00	0.02	0.02	99.14
Paving Worker Trips	0.04	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.01	195.63
Fine Grading 12/01/2011- 01/12/2012	2.72	21.98	12.42	0.00	20.91	1.07	21.99	4.37	0.99	5.36	2,359.11
Fine Grading Dust	0.00	0.00	0.00	0.00	20.91	0.00	20.91	4.37	0.00	4.37	0.00
Fine Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
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	0.00
Fine Grading Worker Trips	0.02	0.04	0.91	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.79

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Time Slice 1/12/2012-1/12/2012 Active Days: 1	5.80	41.21	26.72	**0.01**	20.93	2.50	23.43	4.38	2.30	6.67	4,679.70
Asphalt 12/29/2011-01/12/2012	2.02	11.21	8.61	0.00	0.01	0.93	0.95	0.00	0.86	0.86	1,274.00
Paving Off-Gas	0.22	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	0.04	0.50	0.18	0.00	0.00	0.02	0.02	0.00	0.02	0.02	99.14
Paving Worker Trips	0.04	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.01	195.63
Building 01/12/2012-08/23/2012	1.07	8.02	5.69	0.00	0.01	0.49	0.50	0.00	0.45	0.45	1,046.60
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	0.01	0.10	0.11	0.00	0.00	0.00	0.01	0.00	0.00	0.00	28.72
Building Worker Trips	0.03	0.04	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.49
Fine Grading 12/01/2011- 01/12/2012	2.72	21.98	12.42	0.00	20.91	1.07	21.99	4.37	0.99	5.36	2,359.11
Fine Grading Dust	0.00	0.00	0.00	0.00	20.91	0.00	20.91	4.37	0.00	4.37	0.00
Fine Grading Off Road Diesel	2.69	21.95	11.51	0.00	0.00	1.07	1.07	0.00	0.99	0.99	2,247.32
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	0.00
Fine Grading Worker Trips	0.02	0.04	0.91	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.79
Time Slice 1/13/2012-8/8/2012 Active Days: 149	1.07	8.02	5.69	0.00	0.01	0.49	0.50	0.00	0.45	0.45	1,046.60
Building 01/12/2012-08/23/2012	1.07	8.02	5.69	0.00	0.01	0.49	0.50	0.00	0.45	0.45	1,046.60
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	0.01	0.10	0.11	0.00	0.00	0.00	0.01	0.00	0.00	0.00	28.72
Building Worker Trips	0.03	0.04	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.49

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Time Slice 8/9/2012-8/23/2012 Active Days: 11	**18.82**	8.03	5.88	0.00	0.01	0.49	0.50	0.00	0.45	0.46	1,069.75
Building 01/12/2012-08/23/2012	1.07	8.02	5.69	0.00	0.01	0.49	0.50	0.00	0.45	0.45	1,046.60
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	0.01	0.10	0.11	0.00	0.00	0.00	0.01	0.00	0.00	0.00	28.72
Building Worker Trips	0.03	0.04	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.49
Coating 08/09/2012-09/06/2012	17.75	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.16
Architectural Coating	17.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.16
Time Slice 8/24/2012-9/6/2012 Active Days: 10	17.75	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.16
Coating 08/09/2012-09/06/2012	17.75	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.16
Architectural Coating	17.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.16

Phase Assumptions

Phase: Demolition 12/1/2011 - 12/31/2011 - Type Your Description Here

Building Volume Total (cubic feet): 2812.5

Building Volume Daily (cubic feet): 131.1

On Road Truck Travel (VMT): 1.82

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 12/1/2011 - 1/12/2012 - Default Fine Site Grading Description

Total Acres Disturbed: 1.5

Maximum Daily Acreage Disturbed: 0.38

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Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 145 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: Trenching 12/1/2011 - 12/15/2011 - Type Your Description Here

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 12/29/2011 - 1/12/2012 - Default Paving Description

Acres to be Paved: 0.92

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 1/12/2012 - 8/23/2012 - Default Building Construction Description

Off-Road Equipment:

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 8/9/2012 - 9/6/2012 - Default Architectural Coating Description

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

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

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 Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.01	0.11	0.10	0.00	0.00	0.00	137.81
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	0.10						
TOTALS (lbs/day, unmitigated)	0.23	0.13	1.65	0.00	0.01	0.01	140.62

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
Hospital	2.09	2.22	26.19	0.03	4.30	0.83	2,705.83
TOTALS (lbs/day, unmitigated)	2.09	2.22	26.19	0.03	4.30	0.83	2,705.83

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Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2013 Temperature (F): 95 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
Hospital		17.57	1000 sq ft	17.40	305.72	2,499.24
					305.72	2,499.24

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.6	99.2	0.2
Light Truck < 3750 lbs	10.0	2.0	93.0	5.0
Light Truck 3751-5750 lbs	22.6	0.4	99.2	0.4
Med Truck 5751-8500 lbs	10.2	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
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	0.0	0.0	0.0	0.0
Motorcycle	3.5	54.3	45.7	0.0
School Bus	0.1	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
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)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	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)						
Hospital				25.0	12.5	62.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: S:\Projects\11540011 Folsom Prison Expansion\AQ\Modeling\SAC Folsom_2010_07_21.urb924

Project Name: SAC Folsom

Project Location: Sacramento County AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	0.06	0.44	0.26	0.00	0.23	0.02	0.26	0.05	0.02	0.07	46.28
2012 TOTALS (tons/year unmitigated)	0.29	0.79	0.55	0.00	0.09	0.05	0.14	0.02	0.04	0.06	100.84

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.03	0.02	0.16	0.00	0.00	0.00	25.40

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.38	0.47	4.54	0.00	0.79	0.15	461.64

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.41	0.49	4.70	0.00	0.79	0.15	487.04

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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2011	0.06	0.44	0.26	0.00	0.23	0.02	0.26	0.05	0.02	0.07	46.28
Demolition 12/01/2011-12/31/2011	0.01	0.08	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	9.01
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.08	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.70
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23
Fine Grading 12/01/2011-01/12/2012	0.03	0.26	0.14	0.00	0.23	0.01	0.24	0.05	0.01	0.06	25.95
Fine Grading Dust	0.00	0.00	0.00	0.00	0.23	0.00	0.23	0.05	0.00	0.05	0.00
Fine Grading Off Road Diesel	0.03	0.26	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.72
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	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23
Trenching 12/01/2011-12/15/2011	0.01	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.05
Trenching Off Road Diesel	0.01	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.43
Trenching Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61
Asphalt 12/29/2011-01/12/2012	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20

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2012	0.29	0.79	0.55	0.00	0.09	0.05	0.14	0.02	0.04	0.06	100.84
Asphalt 12/29/2011-01/12/2012	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.73
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.41
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88
Fine Grading 12/01/2011-01/12/2012	0.01	0.10	0.06	0.00	0.09	0.00	0.10	0.02	0.00	0.02	10.62
Fine Grading Dust	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.02	0.00	0.02	0.00
Fine Grading Off Road Diesel	0.01	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.11
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	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
Building 01/12/2012-08/23/2012	0.09	0.65	0.46	0.00	0.00	0.04	0.04	0.00	0.04	0.04	84.25
Building Off Road Diesel	0.08	0.63	0.37	0.00	0.00	0.04	0.04	0.00	0.04	0.04	71.92
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.31
Building Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.02
Coating 08/09/2012-09/06/2012	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
Architectural Coating	0.19	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24

Phase Assumptions

Phase: Demolition 12/1/2011 - 12/31/2011 - Type Your Description Here

Building Volume Total (cubic feet): 2812.5

Building Volume Daily (cubic feet): 131.1

On Road Truck Travel (VMT): 1.82

Off-Road Equipment:

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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 12/1/2011 - 1/12/2012 - Default Fine Site Grading Description

Total Acres Disturbed: 1.5

Maximum Daily Acreage Disturbed: 0.38

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 145 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: Trenching 12/1/2011 - 12/15/2011 - Type Your Description Here

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 12/29/2011 - 1/12/2012 - Default Paving Description

Acres to be Paved: 0.92

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

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Phase: Building Construction 1/12/2012 - 8/23/2012 - Default Building Construction Description

Off-Road Equipment:

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 8/9/2012 - 9/6/2012 - Default Architectural Coating Description

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

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

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

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.00	0.02	0.02	0.00	0.00	0.00	25.15
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.02						
TOTALS (tons/year, unmitigated)	0.03	0.02	0.16	0.00	0.00	0.00	25.40

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Hospital	0.38	0.47	4.54	0.00	0.79	0.15	461.64
TOTALS (tons/year, unmitigated)	0.38	0.47	4.54	0.00	0.79	0.15	461.64

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2013 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
Hospital		17.57	1000 sq ft	17.40	305.72	2,499.24
					305.72	2,499.24

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.6	99.2	0.2
Light Truck < 3750 lbs	10.0	2.0	93.0	5.0
Light Truck 3751-5750 lbs	22.6	0.4	99.2	0.4
Med Truck 5751-8500 lbs	10.2	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
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	0.0	0.0	0.0	0.0
Motorcycle	3.5	54.3	45.7	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			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	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)						
Hospital				25.0	12.5	62.5

Summary of Operational Greenhouse Gases

Project:	CDCR Folsom
Prepared by:	Michael Brandman Associates
Prepared on:	21-Jul-10
Year of analysis:	2013

	Emissions (tons per year)				
Source	**Carbon Dioxide**	**Nitrous Oxide**	**Methane**	**Other**	**Metric Tons CO2e**
Motor vehicles	462	0.02	0.04		425
Natural gas	25	0.00	0.01		23
Indirect electricity	146	0.00	0.01		133
Water transport	7	0.00	0.00		6
Total	640	0.02	0.06	0.00	588

	Emissions (metric tons per year)			
Total	581	0.02	0.05	0.00
GWP	1	310	21	varies
Total MTCO2e	581	6	1	0
Total MMTCO2e	0.0006	0.0000	0.0000	0.0000

Total - all gases	588	MTCO2e per year
	0.0006	MMTCO2e per year
California emissions in 2004	500	MMTCO2e per year
Project percent of emissions	0.000118%	
U.S. emissions in 2005	7,260.4	
Project percent of emissions	0.000008%	
Global emissions in 2004	20135	
Project percent of emissions	0.000003%	

Last updated 4/14/10

Notes:

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 (0.9072 metric tons)

Emissions converted to million metric tons of carbon dioxide equivalents (MMTCO2E) using the formula: MMTCO2e = (metric tons of gas) / (1,000,000).

Motor vehicle carbon dioxide and natural gas carbon dioxide values are from the URBEMIS2007 output.

Mobile Emissions - Methane Page 1

CDCR Folsom 21-Jul-10

Prepared by Michael Brandman Associates **Vehicle Miles Traveled** 2,499

Vehicle Trips 306

	Pounds/day	Tons/day	Tons/year
Starting Emissions	0.03	0.0000	0.01
Running Emissions	0.20	0.0001	0.04
Total	0.23	0.0001	0.04

Vehicle Percentages

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.6	99.2	0.2
Light Truck < 3,750 lbs	10.0	2.0	93.0	5.0
Light Truck 3,751- 5,750	22.6	0.4	99.2	0.4
Med Truck 5,751- 8,500	10.2	1.0	99.0	0.0
Lite-Heavy 8,501-10,000	2.1	0.0	76.2	23.8
Lite-Heavy 10,001-14,000	0.9	0.0	55.6	44.4
Med-Heavy 14,001-33,000	1.6	0.0	18.8	81.2
Heavy-Heavy 33,001-60,000	0.5	0.0	0.0	100.0
Line Haul > 60,000 lbs	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	54.3	45.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Running Emission Factors (g/mile)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.3250	0.0250	0.0080
Light Truck < 3,750 lbs	LDT1	0.3310	0.0330	0.0040
Light Truck 3,751- 5,750	LDT2	0.3300	0.0300	0.0060
Med Truck 5,751- 8,500	MDV	0.3910	0.0370	0.0030
Lite-Heavy 8,501-10,000	LHDT1	0.2500	0.0280	0.0070
Lite-Heavy 10,001-14,000	LHDT2	0.2500	0.0330	0.0100
Med-Heavy 14,001-33,000	MHDT	0.3210	0.0720	0.0100
Heavy-Heavy 33,001-60,000	HHDT	0.7950	0.2250	0.0480
Line Haul > 60,000 lbs	LHV	0.7950	0.2250	0.0480
Urban Bus	UB	0.3680	0.0920	0.0280
Motorcycle	MCY	0.2230	0.1620	0.0000
School Bus	SBUS	0.3210	0.1260	0.0130
Motor Home	MH	0.3210	0.0560	0.0050

Running Emissions (pounds per day)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.01	0.06	0.00
Light Truck < 3,750 lbs	0.00	0.02	0.00
Light Truck 3,751- 5,750	0.00	0.04	0.00
Med Truck 5,751- 8,500	0.00	0.02	0.00
Lite-Heavy 8,501-10,000	0.00	0.00	0.00
Lite-Heavy 10,001-14,000	0.00	0.00	0.00
Med-Heavy 14,001-33,000	0.00	0.00	0.00
Heavy-Heavy 33,001-60,000	0.00	0.00	0.00
Line Haul > 60,000 lbs	0.00	0.00	0.00
Urban Bus	0.00	0.00	0.00
Motorcycle	0.02	0.01	0.00
School Bus	0.00	0.00	0.00
Motor Home	0.00	0.00	0.00
Total	0.04	0.16	0.00

Mobile Emissions - Methane
CDCR Folsom
Prepared by Michael Brandman Associates

Total Trips 306

Starting Emission Factors (g/start)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.384	0.032	0
Light Truck < 3,750 lbs	LDT1	0.381	0.038	0.000
Light Truck 3,751- 5,750	LDT2	0.377	0.034	0.000
Med Truck 5,751- 8,500	MDV	0.463	0.044	0.000
Lite-Heavy 8,501-10,000	LHDT1	0.615	0.106	0.000
Lite-Heavy 10,001-14,000	LHDT2	0.615	0.123	0.000
Med-Heavy 14,001-33,000	MHDT	0.923	0.277	0.000
Heavy-Heavy 33,001-60,000	HHDT	1.756	0.829	0.000
Line Haul > 60,000 lbs	LHV	1.756	0.829	0.000
Urban Bus	UB	1.127	0.314	0.000
Motorcycle	MCY	0.183	0.155	0.000
School Bus	SBUS	0.923	0.313	0.000
Motor Home	MH	0.923	0.200	0.000

Trip Distribution

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.9	144.1	0.3
Light Truck < 3,750 lbs	LDT1	0.6	28.4	1.5
Light Truck 3,751- 5,750	LDT2	0.3	68.5	0.3
Med Truck 5,751- 8,500	MDV	0.3	30.9	0.0
Lite-Heavy 8,501-10,000	LHDT1	0.0	4.9	1.5
Lite-Heavy 10,001-14,000	LHDT2	0.0	1.5	1.2
Med-Heavy 14,001-33,000	MHDT	0.0	0.9	4.0
Heavy-Heavy 33,001-60,000	HHDT	0.0	0.0	1.5
Line Haul > 60,000 lbs	LHV	0.0	0.0	0.3
Urban Bus	UB	0.0	0.0	0.0
Motorcycle	MCY	5.8	4.9	0.0
School Bus	SBUS	0.0	0.0	0.3
Motor Home	MH	0.0	2.4	0.3
Total		7.9	286.6	11.3

Starting Emissions (pounds per day)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0007	0.0101	0.0000
Light Truck < 3,750 lbs	LDT1	0.0005	0.0024	0.0000
Light Truck 3,751- 5,750	LDT2	0.0002	0.0051	0.0000
Med Truck 5,751- 8,500	MDV	0.0003	0.0030	0.0000
Lite-Heavy 8,501-10,000	LHDT1	0.0000	0.0011	0.0000
Lite-Heavy 10,001-14,000	LHDT2	0.0000	0.0004	0.0000
Med-Heavy 14,001-33,000	MHDT	0.0000	0.0006	0.0000
Heavy-Heavy 33,001-60,000	HHDT	0.0000	0.0000	0.0000
Line Haul > 60,000 lbs	LHV	0.0000	0.0000	0.0000
Urban Bus	UB	0.0000	0.0000	0.0000
Motorcycle	MCY	0.0023	0.0017	0.0000
School Bus	SBUS	0.0000	0.0000	0.0000
Motor Home	MH	0.0000	0.0011	0.0000
Total		0.0041	0.0255	0.0000

- Source of vehicle percentages: URBEMIS.
- Source of emission factors: EMFAC2007, Statewide average, year 2010, temperature 60F, relative humidity 50%

Mobile Emissions - Nitrous Oxide Page 1

CDCR Folsom **Vehicle Miles Traveled** 2,499

Prepared by Michael Brandman Associates

	Pounds/day	Tons/day	Tons/year
Starting Emissions	0.03	0.0000	0.01
Running Emissions	0.08	0.0000	0.01
Total	0.11	0.0001	0.02

Vehicle Percentages

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.6	99.2	0.2
Light Truck < 3,750 lbs	10.0	2.0	93.0	5.0
Light Truck 3,751- 5,750	22.6	0.4	99.2	0.4
Med Truck 5,751- 8,500	10.2	1.0	99.0	0.0
Lite-Heavy 8,501-10,000	2.1	0.0	76.2	23.8
Lite-Heavy 10,001-14,000	0.9	0.0	55.6	44.4
Med-Heavy 14,001-33,000	1.6	0.0	18.8	81.2
Heavy-Heavy 33,001-60,000	0.5	0.0	0.0	100.0
Line Haul > 60,000 lbs	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	54.3	45.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Running Emission Factors (mg/km)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Automobile	8	20	1
Light duty truck	9	26	1
Heavy duty trucks and buses	20	55	3
Motorcycle	3	3	3

Running Emission Factors (g/mile)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0050	0.0124	0.0006
Light Truck < 3,750 lbs	LDT1	0.0056	0.0162	0.0006
Light Truck 3,751- 5,750	LDT2	0.0056	0.0162	0.0006
Med Truck 5,751- 8,500	MDV	0.0056	0.0162	0.0006
Lite-Heavy 8,501-10,000	LHDT1	0.0124	0.0342	0.0019
Lite-Heavy 10,001-14,000	LHDT2	0.0124	0.0342	0.0019
Med-Heavy 14,001-33,000	MHDT	0.0124	0.0342	0.0019
Heavy-Heavy 33,001-60,000	HHDT	0.0124	0.0342	0.0019
Line Haul > 60,000 lbs	LHV	0.0124	0.0342	0.0019
Urban Bus	UB	0.0124	0.0342	0.0019
Motorcycle	MCY	0.0019	0.0019	0.0019
School Bus	SBUS	0.0124	0.0342	0.0019
Motor Home	MH	0.0124	0.0342	0.0019

Running Emissions (pounds per day)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.00	0.03	0.00
Light Truck < 3,750 lbs	0.00	0.01	0.00
Light Truck 3,751- 5,750	0.00	0.02	0.00
Med Truck 5,751- 8,500	0.00	0.01	0.00
Lite-Heavy 8,501-10,000	0.00	0.00	0.00
Lite-Heavy 10,001-14,000	0.00	0.00	0.00
Med-Heavy 14,001-33,000	0.00	0.00	0.00
Heavy-Heavy 33,001-60,000	0.00	0.00	0.00
Line Haul > 60,000 lbs	0.00	0.00	0.00
Urban Bus	0.00	0.00	0.00
Motorcycle	0.00	0.00	0.00
School Bus	0.00	0.00	0.00
Motor Home	0.00	0.00	0.00
Total	0.00	0.08	0.00

Mobile Emissions - Nitrous Oxide

Total Trips 306

Starting Emission Factors (mg/start)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Automobile	**28**	72	0
Light duty truck	**9**	26	-1
Heavy duty trucks and buses	**70**	194	-2
Motorcycle	**12**	12	0

Starting Emission Factors (g/start)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.028	0.072	0
Light Truck < 3,750 lbs	LDT1	0.009	0.026	-0.001
Light Truck 3,751- 5,750	LDT2	0.009	0.026	-0.001
Med Truck 5,751- 8,500	MDV	0.009	0.026	-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	0.000
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	0.9	144.1	0.3
Light Truck < 3,750 lbs	LDT1	0.6	28.4	1.5
Light Truck 3,751- 5,750	LDT2	0.3	68.5	0.3
Med Truck 5,751- 8,500	MDV	0.3	30.9	0.0
Lite-Heavy 8,501-10,000	LHDT1	0.0	4.9	1.5
Lite-Heavy 10,001-14,000	LHDT2	0.0	1.5	1.2
Med-Heavy 14,001-33,000	MHDT	0.0	0.9	4.0
Heavy-Heavy 33,001-60,000	HHDT	0.0	0.0	1.5
Line Haul > 60,000 lbs	LHV	0.0	0.0	0.3
Urban Bus	UB	0.0	0.0	0.0
Motorcycle	MCY	5.8	4.9	0.0
School Bus	SBUS	0.0	0.0	0.3
Motor Home	MH	0.0	2.4	0.3
Total		7.9	286.6	11.3

Starting Emissions (pounds per day)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0001	0.0228	0.0000
Light Truck < 3,750 lbs	LDT1	0.0000	0.0016	0.0000
Light Truck 3,751- 5,750	LDT2	0.0000	0.0039	0.0000
Med Truck 5,751- 8,500	MDV	0.0000	0.0018	0.0000
Lite-Heavy 8,501-10,000	LHDT1	0.0000	0.0021	0.0000
Lite-Heavy 10,001-14,000	LHDT2	0.0000	0.0007	0.0000
Med-Heavy 14,001-33,000	MHDT	0.0000	0.0004	0.0000
Heavy-Heavy 33,001-60,000	HHDT	0.0000	0.0000	0.0000
Line Haul > 60,000 lbs	LHV	0.0000	0.0000	0.0000
Urban Bus	UB	0.0000	0.0000	0.0000
Motorcycle	MCY	0.0002	0.0001	0.0000
School Bus	SBUS	0.0000	0.0000	0.0000
Motor Home	MH	0.0000	0.0010	0.0000
Total		0.0002	0.0344	0.0000

Sources: Vehicle percentages: URBEMIS2007.
Emission Factors (mg/km and mg/start): 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2: Energy, Table 3.2.3, www.ipcc-nggip.iges.or.jp/EFDB/find_ef_main.php

Electricity - Indirect Emissions

Project: CDCR Folsom
Prepared by: Michael Brandman Associates
Prepared on: 7/21/2010

Land Use	square feet (sf)	Electricity Use (kWh/sf-year) or (kWh/unit-year)	Electricity Use (kWh/year)
Institutional	17,570	23.02	404461.4
Total (MWh/year)			**404**

Greenhouse Gas	Emission Factor (pounds per MWh)	Emissions (pounds/year)	Emissions (tons/year)
Carbon dioxide	724.12	292,879	146
Methane	0.0302	12	0.01
Nitrous oxide	0.0081	3	0.00

Emission factor source: California Climate Action Registry. General Reporting Protocol. Reporting Entity-Wide Greenhouse Gas Emissions. Version 3.1, January 2009. Table C.2
www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf

Water Conveyance, Treatment, Distribution

Project: CDCR Folsom
Prepared by: Michael Brandman Associates
Prepared on: 7/21/2010

	kWh per million gallons	
Electricity Requirements	**Northern California**	**Southern California**
Water Supply, Conveyance	2,117	9,727
Water Treatment	111	111
Water Distribution	1,272	1,272
Wastewater Treatment	1,911	1,911
Total	*5,411*	*13,021*

Project

Water Usage	9,393	gallons per day
Water Usage	3.428445	million gallons per year
Energy Usage	18,551	kWh
Energy Usage	19	MWh

Greenhouse Gas	Electricity Emission Factor (pounds per MWh)	Emissions (pounds/year)	Emissions (tons/year)
Carbon dioxide	724.12	13,433	7
Methane	0.0302	0.56	0.000
Nitrous oxide	0.0081	0.15	0.000

Source for electricity emission factor:
California Climate Action Registry. General Reporting Protocol. Reporting Entity-Wide Greenhouse Gas Emissions. Version 3.1, January 2009. Table C.2.
www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf

Source for electricity requirements:
Navigant Consulting, Inc. 2006. Refining Estimates of Water-Related Energy Use in California. California Energy Commission, PIER Industrial/Agricultural/Water End Use Energy Efficiency Program. CEC-500-2006-118. www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html

Natural Gas Combustion

CDCR Folsom
Prepared by Michael Brandman Associates
7/21/2010

Gas	Type of Land Use	Square Feet	Annual Natural Gas Usage Factor* (kBTU/sf)	Natural Gas Usage for Project (MMBTU/year)	Emission Factor (kg/MMBTU)**	Emissions (kg/year)	Emissions (tons/year)	Emissions (MTCO2e/year)
Methane	Institutional	17,570	109.50	1924	0.005	9.6	0.011	0.20
Nitrous Oxide	Institutional	17,570	109.50	1924	0.0001	0.2	0.0002	0.06

Greenhouse Gas	Global Warming Potentials
Methane	21
Nitrous Oxide	310

* Natural gas usage: Table E-1 from California Energy Commission. California Commercial End-Use Survey. Consultant Report. March 2006. CEC-400-2006-005

** Emission factors: Table C.8 from California Climate Action Registry, General Reporting Protocol. Version 3.1, January 2009. www.climateregistry.org/tools/protocols/general-reporting-protocol.html

Table E-1: Overview of Energy Usage in the Statewide Service Area

Building Type	Floor Stock (kft^2)	Annual Energy Intensities			Total Annual Usage	
		Electricity (kWh/ft^2)	Natural Gas ($therms/ft^2$)	Natural Gas ($kBtu/ft^2$)	Electricity (GWh)	Natural Gas (Mtherms)
All Commercial	4,920,114	13.63	0.26	25.99	67077	1278.60
Small Office (<30k ft^2)	361,584	13.10	0.11	10.54	4738	38.10
Large Office (>=30k ft^2)	660,429	17.70	0.22	21.93	11691	144.80
Restaurant	148,892	40.20	2.10	209.98	5986	312.60
Retail	702,053	14.06	0.05	4.62	9871	32.50
Food Store	144,209	40.99	0.28	27.60	5911	39.80
Refrigerated Warehouse	95,540	20.02	0.06	5.60	1913	5.30
Unrefrigerated Warehouse	554,166	4.45	0.03	3.07	2467	17.00
School	445,106	7.46	0.16	15.97	3322	71.10
College	205,942	12.26	0.34	34.24	2524	70.50
Health	232,606	19.61	0.76	75.53	4561	175.70
Lodging	270,044	12.13	0.42	42.40	3275	114.50
Miscellaneous	1,099,544	9.84	0.23	23.34	10817	256.60
All Offices	1,022,012	16.08	0.18	17.90	16430	182.90
All Warehouses	649,706	6.74	0.03	3.44	4380	22.40