

APPENDIX C

Air Quality Modeling Results

Urbemis 2007 Version 9.2.2

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\SAC\Lowes Manteca\LowUrb\LowPhase1.urb9

Project Name: Lowes Manteca Phase 1

Project Location: San Joaquin County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

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>
2008 TOTALS (tons/year unmitigated)	2.11	1.50	1.48	0.00	0.60	0.09	0.70	0.13	0.09	0.21	185.66

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 (tons/year, unmitigated)	0.20	0.30	0.25	0.00	0.00	0.00	361.16

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 (tons/year, unmitigated)	5.52	8.40	68.14	0.04	4.03	0.91	4,450.46

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 (tons/year, unmitigated)	5.72	8.70	68.39	0.04	4.03	0.91	4,811.62

Urbemis 2007 Version 9.2.2

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\SAC\Lowes Manteca\LowUrb\LowPhase1.urb9

Project Name: Lowes Manteca Phase 1

Project Location: San Joaquin County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	<u>ROG</u>	<u>NOx</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2008	2.11	1.50	0.60	0.09	0.70	0.13	0.09	0.21	185.66
Fine Grading 08/04/2008-08/29/2008	0.06	0.47	0.60	0.02	0.62	0.13	0.02	0.15	42.80
Fine Grading Dust	0.00	0.00	0.60	0.00	0.60	0.13	0.00	0.13	0.00
Fine Grading Off Road Diesel	0.05	0.47	0.00	0.02	0.02	0.00	0.02	0.02	40.94
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
Asphalt 09/02/2008-09/19/2008	0.03	0.16	0.00	0.01	0.01	0.00	0.01	0.01	14.13
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.11	0.00	0.01	0.01	0.00	0.01	0.01	7.92
Paving On Road Diesel	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	4.77
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
Building 09/02/2008-12/26/2008	0.20	0.87	0.00	0.06	0.06	0.00	0.06	0.06	126.54
Building Off Road Diesel	0.17	0.77	0.00	0.06	0.06	0.00	0.05	0.05	68.09
Building Vendor Trips	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	11.56
Building Worker Trips	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	46.89
Coating 12/01/2008-12/24/2008	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18
Architectural Coating	1.83	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	2.18

Phase Assumptions

Phase: Fine Grading 8/4/2008 - 8/29/2008 - Default Fine Site Grading Description

Total Acres Disturbed: 12

Maximum Daily Acreage Disturbed: 3

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

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On Road Truck Travel (VMT): 8.25

Off-Road Equipment:

- 1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
- 1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 2 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 9/2/2008 - 9/19/2008 - Default Paving Description

Acres to be Paved: 8

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
- 2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 9/2/2008 - 12/26/2008 - Default Building Construction Description

Off-Road Equipment:

- 1 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 12/1/2008 - 12/24/2008 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

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

Urbemis 2007 Version 9.2.2

Detail Report for Annual Area Source Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\SAC\Lowes Manteca\LowUrb\LowPhase1.urb9

Project Name: Lowes Manteca Phase 1

Project Location: San Joaquin 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 (Annual Tons Per Year, Unmitigated)

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.02	0.30	0.00	0.00	361.16
Hearth					
Landscape					
Consumer Products	0.00				
Architectural Coatings	0.18				
TOTALS (tons/year, unmitigated)	0.20	0.30	0.00	0.00	361.16

Area Source Changes to Defaults

Urbemis 2007 Version 9.2.2

Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\SAC\Lowes Manteca\LowUrb\LowPhase1.urb9

Project Name: Lowes Manteca Phase 1

Project Location: San Joaquin County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

<u>Source</u>	ROG	NOX	CO	PM10	PM25	CO2
Home improvement superstore	5.52	8.40	68.14	4.03	0.91	4,450.46
TOTALS (tons/year, unmitigated)	5.52	8.40	68.14	4.03	0.91	4,450.46

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 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
Home improvement superstore		20.23	1000 sq ft	170.60	3,451.24	25,515.00
					3,451.24	25,515.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	49.0	2.0	97.6	0.4
Light Truck < 3750 lbs	10.9	3.7	90.8	5.5
Light Truck 3751-5750 lbs	21.7	0.9	98.6	0.5

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Med Truck 5751-8500 lbs	9.5	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	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	3.5	77.1	22.9	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
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)						
Home improvement superstore				2.0	1.0	97.0

Operational Changes to Defaults

Urbemis 2007 Version 9.2.2

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\SAC\Lowes Manteca\LowUrb\LowPhase2 const.urb9

Project Name: Lowes Manteca Phase 2 Construction

Project Location: San Joaquin County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</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 (tons/year unmitigated)	0.57	1.61	0.42	0.10	0.52	0.09	0.09	0.18	172.00

Urbemis 2007 Version 9.2.2

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\SAC\Lowes Manteca\LowUrb\LowPhase2 const.urb9

Project Name: Lowes Manteca Phase 2 Construction

Project Location: San Joaquin County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	<u>ROG</u>	<u>NOx</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2009	0.57	1.61	0.42	0.10	0.52	0.09	0.09	0.18	172.00
Fine Grading 01/02/2009-01/30/2009	0.03	0.28	0.42	0.01	0.43	0.09	0.01	0.10	24.67
Fine Grading Dust	0.00	0.00	0.42	0.00	0.42	0.09	0.00	0.09	0.00
Fine Grading Off Road Diesel	0.03	0.28	0.00	0.01	0.01	0.00	0.01	0.01	23.60
Fine Grading On Road Diesel	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	1.07
Building 02/03/2009-12/22/2009	0.16	1.18	0.00	0.08	0.08	0.00	0.07	0.07	133.15
Building Off Road Diesel	0.15	1.13	0.00	0.07	0.07	0.00	0.07	0.07	103.19
Building Vendor Trips	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	5.93
Building Worker Trips	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	24.04
Asphalt 02/10/2009-02/28/2009	0.03	0.15	0.00	0.01	0.01	0.00	0.01	0.01	13.77
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.11	0.00	0.01	0.01	0.00	0.01	0.01	7.92
Paving On Road Diesel	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	4.42
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
Coating 12/01/2009-12/20/2009	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
Architectural Coating	0.34	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	0.41

Phase Assumptions

Phase: Fine Grading 1/2/2009 - 1/30/2009 - Default Fine Site Grading Description

Total Acres Disturbed: 8

Maximum Daily Acreage Disturbed: 2

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

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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 2/10/2009 - 2/28/2009 - Default Paving Description

Acres to be Paved: 7.4

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
- 2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 2/3/2009 - 12/22/2009 - 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 12/1/2009 - 12/20/2009 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

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

Urbemis 2007 Version 9.2.2

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\SAC\Lowes Manteca\LowUrb\LowPhase1 and 2 ops.urb9

Project Name: Lowes Manteca Phases 1 and 2 Operations

Project Location: San Joaquin 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

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.24	0.34	0.29	0.00	0.00	410.22

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	9.84	17.07	121.16	7.73	1.79	8,722.87

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	10.08	17.41	121.45	7.73	1.79	9,133.09

Urbemis 2007 Version 9.2.2

Detail Report for Annual Area Source Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\SAC\Lowes Manteca\LowUrb\LowPhase1 and 2 ops.urb9

Project Name: Lowes Manteca Phases 1 and 2 Operations

Project Location: San Joaquin 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 (Annual Tons Per Year, Unmitigated)

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.02	0.34	0.29	0.00	0.00	410.22
Hearth						
Landscape						
Consumer Products	0.00					
Architectural Coatings	0.22					
TOTALS (tons/year, unmitigated)	0.24	0.34	0.29	0.00	0.00	410.22

Area Source Changes to Defaults

Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\kurtzj\My Documents\Active\SAC\Lowes Manteca\LowUrb\LowPhase1 and 2 ops.urb9

Project Name: Lowes Manteca Phases 1 and 2 Operations

Project Location: San Joaquin County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

<u>Source</u>	ROG	NOX	CO	PM10	PM25	CO2
Fast food rest. w/ drive thru	2.42	4.31	30.62	1.95	0.45	2,202.51
Home improvement superstore	4.96	8.44	59.87	3.82	0.89	4,311.65
General unknown retail	2.46	4.32	30.67	1.96	0.45	2,208.71
TOTALS (tons/year, unmitigated)	9.84	17.07	121.16	7.73	1.79	8,722.87

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 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
Fast food rest. w/ drive thru		410.34	1000 sq ft	4.00	1,641.36	12,240.44
Home improvement superstore		19.01	1000 sq ft	170.60	3,243.11	23,976.28
General unknown retail		59.76	1000 sq ft	27.80	1,661.33	12,282.20
					6,545.80	48,498.92

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	45.7	1.5	98.3	0.2
Light Truck < 3750 lbs	11.5	3.5	89.5	7.0
Light Truck 3751-5750 lbs	21.0	1.4	98.1	0.5
Med Truck 5751-8500 lbs	11.3	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	71.4	28.6
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	42.9	57.1
Med-Heavy Truck 14,001-33,000 lbs	1.1	9.1	18.2	72.7
Heavy-Heavy Truck 33,001-60,000 lbs	1.6	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.8	68.4	31.6	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
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)						
Fast food rest. w/ drive thru				5.0	2.5	92.5
Home improvement superstore				2.0	1.0	97.0

2.0

1.0

97.0

Operational Changes to Defaults