

**APPENDIX C**  
**Air Quality Data**



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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name:

Project Name: Roddy Ranch

Project Location: Bay Area Air District

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>PM10</u>	<u>PM2.5</u>
TOTALS (lbs/day, unmitigated)	50.06	10.61	0.10	0.10
TOTALS (lbs/day, mitigated)	49.91	8.56	0.10	0.10
Percent Reduction	0.30	19.32	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>PM10</u>	<u>PM2.5</u>
TOTALS (lbs/day, unmitigated)	45.28	49.07	119.03	22.65
TOTALS (lbs/day, mitigated)	45.28	49.07	119.03	22.65
Percent Reduction	0.00	0.00	0.00	0.00

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>PM10</u>	<u>PM2.5</u>
TOTALS (lbs/day, unmitigated)	95.34	59.68	119.13	22.75
TOTALS (lbs/day, mitigated)	95.19	57.63	119.13	22.75
Percent Reduction	0.16	3.43	0.00	0.00

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>PM10</u>	<u>PM2.5</u>
Natural Gas	0.78	10.27	0.02	0.02
Hearth - No Summer Emissions				
Landscape	5.09	0.34	0.08	0.08
Consumer Products	34.25			
Architectural Coatings	9.94			
TOTALS (lbs/day, unmitigated)	50.06	10.61	0.10	0.10

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>PM10</u>	<u>PM2.5</u>
Natural Gas	0.63	8.22	0.02	0.02
Hearth - No Summer Emissions				
Landscape	5.09	0.34	0.08	0.08
Consumer Products	34.25			
Architectural Coatings	9.94			
TOTALS (lbs/day, mitigated)	49.91	8.56	0.10	0.10

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	PM10	PM25
Single family housing	31.53	34.69	84.29	16.04
Condo/townhouse general	3.54	3.54	8.60	1.64
Hotel	10.21	10.84	26.14	4.97
TOTALS (lbs/day, unmitigated)	45.28	49.07	119.03	22.65

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOX	PM10	PM25
Single family housing	31.53	34.69	84.29	16.04
Condo/townhouse general	3.54	3.54	8.60	1.64
Hotel	10.21	10.84	26.14	4.97
TOTALS (lbs/day, mitigated)	45.28	49.07	119.03	22.65

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 85 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
Single family housing	200.00	9.57	dwelling units	600.00	5,742.00	49,092.38

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	6.25	5.86	dwelling units	100.00	586.00	5,010.12
Hotel		8.17	rooms	250.00	2,042.50	15,231.94
					8,370.50	69,334.44

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.8	0.2	99.6	0.2
Light Truck < 3750 lbs	12.7	0.8	96.8	2.4
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
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	0.4	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	3.2	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	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)						
Hotel				5.0	2.5	92.5

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\I&R Docs\08-064 Roddy Ranch\AQ\Roddy Ranch Cumulative.urb924

Project Name: Roddy Ranch Cumulative

Project Location: Bay Area Air District

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

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 (lbs/day, unmitigated)	51.77	12.83	40.00	0.00	0.11	0.11	15,624.60
TOTALS (lbs/day, mitigated)	51.58	10.34	38.59	0.00	0.11	0.11	12,510.53
Percent Reduction	0.37	19.41	3.53	NaN	0.00	0.00	19.93

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 (lbs/day, unmitigated)	41.34	33.51	377.98	0.66	115.42	21.88	65,463.94
TOTALS (lbs/day, mitigated)	40.69	32.83	370.43	0.62	113.12	21.45	64,154.65
Percent Reduction	1.57	2.03	2.00	6.06	1.99	1.97	2.00

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 (lbs/day, unmitigated)	93.11	46.34	417.98	0.66	115.53	21.99	81,088.54
TOTALS (lbs/day, mitigated)	92.27	43.17	409.02	0.62	113.23	21.56	76,665.18
Percent Reduction	0.90	6.84	2.14	6.06	1.99	1.96	5.45

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.94	12.45	7.03	0.00	0.02	0.02	15,570.36
Hearth - No Summer Emissions							
Landscape	5.33	0.38	32.97	0.00	0.09	0.09	54.24
Consumer Products	34.25						
Architectural Coatings	11.25						
TOTALS (lbs/day, unmitigated)	51.77	12.83	40.00	0.00	0.11	0.11	15,624.60

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.75	9.96	5.62	0.00	0.02	0.02	12,456.29
Hearth - No Summer Emissions							
Landscape	5.33	0.38	32.97	0.00	0.09	0.09	54.24
Consumer Products	34.25						
Architectural Coatings	11.25						
TOTALS (lbs/day, mitigated)	51.58	10.34	38.59	0.00	0.11	0.11	12,510.53

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
Single family housing	13.40	10.23	120.37	0.21	36.86	6.99	20,941.53
Condo/townhouse general	1.63	1.04	12.28	0.02	3.76	0.71	2,137.19
Hotel	5.59	3.93	43.63	0.08	13.52	2.56	7,643.84
Regnl shop. center	11.30	10.34	114.02	0.20	35.04	6.64	19,828.70
Electronic superstore	9.42	7.97	87.68	0.15	26.24	4.98	14,912.68
<b>TOTALS (lbs/day, unmitigated)</b>	<b>41.34</b>	<b>33.51</b>	<b>377.98</b>	<b>0.66</b>	<b>115.42</b>	<b>21.88</b>	<b>65,463.94</b>

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	13.22	10.02	117.96	0.20	36.12	6.85	20,522.70
Condo/townhouse general	1.61	1.02	12.04	0.02	3.69	0.70	2,094.44
Hotel	5.52	3.85	42.76	0.07	13.25	2.51	7,490.96
Regnl shop. center	11.09	10.13	111.74	0.19	34.34	6.51	19,432.13
Electronic superstore	9.25	7.81	85.93	0.14	25.72	4.88	14,614.42
<b>TOTALS (lbs/day, mitigated)</b>	<b>40.69</b>	<b>32.83</b>	<b>370.43</b>	<b>0.62</b>	<b>113.12</b>	<b>21.45</b>	<b>64,154.65</b>

Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 50 Nonresidential Trip % Reduction: 24.76

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	200.00	4.78	dwelling units	600.00	2,871.00	21,490.19
Condo/townhouse general	6.25	2.93	dwelling units	100.00	293.00	2,193.18
Hotel		6.15	rooms	250.00	1,536.85	7,885.23
Regnl shop. center		38.47	1000 sq ft	112.50	4,328.12	20,430.57
Electronic superstore		33.35	1000 sq ft	112.50	3,751.66	15,296.40
					12,780.63	67,295.57

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.0	0.0	100.0	0.0
Light Truck < 3750 lbs	12.6	0.0	98.4	1.6
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
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	0.3	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	3.2	40.6	59.4	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

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)						
Hotel				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0
Electronic superstore				2.0	1.0	97.0

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Combined Annual Emissions Reports (Tons/Year)

File Name:

Project Name: Roddy Ranch

Project Location: Bay Area Air District

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

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)	12.72	2.16	18.50	0.04	2.35	2.27	2,740.14
TOTALS (tons/year, mitigated)	12.69	1.79	18.31	0.04	2.35	2.27	2,267.08
Percent Reduction	0.24	17.13	1.03	0.00	0.00	0.00	17.26

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)	8.31	10.41	97.00	0.12	21.72	4.14	11,733.37
TOTALS (tons/year, mitigated)	8.31	10.41	97.00	0.12	21.72	4.14	11,733.37
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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)	21.03	12.57	115.50	0.16	24.07	6.41	14,473.51
TOTALS (tons/year, mitigated)	21.00	12.20	115.31	0.16	24.07	6.41	14,000.45
Percent Reduction	0.14	2.94	0.16	0.00	0.00	0.00	3.27

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name:

Project Name: Roddy Ranch Cumulative

Project Location: Bay Area Air District

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

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)	13.04	2.61	19.01	0.04	2.35	2.27	3,269.64
TOTALS (tons/year, mitigated)	13.00	2.14	18.75	0.04	2.35	2.27	2,690.73
Percent Reduction	0.31	18.01	1.37	0.00	0.00	0.00	17.71

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)	12.71	14.85	146.48	0.25	46.51	8.80	24,946.78
TOTALS (tons/year, mitigated)	12.46	14.55	143.49	0.24	45.58	8.62	24,437.12
Percent Reduction	1.97	2.02	2.04	4.00	2.00	2.05	2.04

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)	25.75	17.46	165.49	0.29	48.86	11.07	28,216.42
TOTALS (tons/year, mitigated)	25.46	16.69	162.24	0.28	47.93	10.89	27,127.85
Percent Reduction	1.13	4.41	1.96	3.45	1.90	1.63	3.86

**Roddy Ranch Project**  
**Antioch, CA**

Proposed Project

<b>Using CAPCOA/CCAR method</b>				
Sq. Feet	Usage Rate	Emissions (tpy)	Metric tpy	
SF Commercial				
125000	16750	1000	907	
SF Residential				
600	8117	2326	2110	
MF Residential				
100	3451	165	150	
		3,491	tpy	

Cumulative Project

<b>Using CAPCOA/CCAR method</b>				
Sq. Feet	Usage Rate	Emissions (tpy)	Metric tpy	
SF Commercial				
350,000	16750	2800	2540	
SF Residential				
600	8117	2326	2110	
MF Residential				
100	3451	165	150	
		5,291	tpy	

**Roddy Ranch Development**  
**CARBON MONOXIDE ANALYSIS**

PM Peak Hour  
 Assumes worst case of all intersections based on total volume, LOS and project traffic contribution

Intersection	Traffic Volume		1-Hour CO Contribution		Total 1-Hour Concentration		Total 8-Hour Concentration	
	Existing (2008)	Future	Existing (2008)	Future	Existing (2008)	Future	Existing (2008)	Future
Link: Int. 20: Lone Tree Way and Hill Crest Boulevard					<b>5.0</b>	<b>4.0</b>	<b>3.5</b>	<b>2.8</b>
Lone Tree Way (2-Lanes)	2292	3026	2.4	1.5				
Hill Crest Boulevard (2-Lanes)	948	1466	0.3	0.2				
Link: Int 10.: Lone Tree Way and James Donlon Blvd.					<b>6.8</b>	<b>5.3</b>	<b>4.7</b>	<b>3.7</b>
Lone Tree Way (2-Lanes)	3612	5120	3.8	2.6				
James Donlon Blvd. (2-Lanes)	2238	2623	0.7	0.4				

Emission Factors (EMFAC2007 - 5mph)			
Contra Costa County			
LOS E or F (5mph)	2008	(5 mph)	8.869 g/mi
	2015	(5mph)	4.256 g/mi

Background CO Levels -	1-Hour	8-Hour
	2.3	1.6

Dispersion Factors		
Primary	Edge	
2 Ln	14.0	
4 Ln	11.9	
6 Ln	9.5	
Secondary		
2 Ln	3.7	
4 Ln	3.3	
6 Ln	2.8	