APPENDIX K

AIR QUALITY ASSUMPTIONS AND MODELING DATA

APPENDIX K-1	NET CHANGE IN LAND USE TYPE FOR THE HIGH DENSITY AND IMPACT MINIMIZATION ALTERNATIVES, PHASE 1: RELATIVE TO THE PROPOSED PROJECT ALTERNATIVE
APPENDIX K-2	PROPOSED PROJECT ALTERNATIVE, PHASE 1: ISC MODELING EMISSION FACTORS FOR PM_{10}
APPENDIX K-3	HIGH DENSITY ALTERNATIVE, PHASE 1: ISC MODELING EMISSION FACTORS FOR PM_{10}
APPENDIX K-4	IMPACT MINIMIZATION ALTERNATIVE, PHASE 1: EMISSION FACTORS FOR PM_{10}
APPENDIX K-5	CARBON MONOXIDE MODELING DATA FOR AFFECTED INTERSECTIONS – PROPOSED PROJECT ALTERNATIVE ONLY

Rio del Oro Phase 1 Short-Term Construction Air Quality Modeling Assumptions:

- Assume that only approximately half of the area to be developed under phase 1 needs to be graded.
- Nearly all necessary grading would occur at near the beginning of construction of phase 1, rather than over time as different land uses would be developed.
- Due to internal restrictions within URBEMIS on construction duration to 5 years (60 months) it is assumed that 50% implementation of phase 1 would occur within the first 4 years (48 months), and the remaining 50% would occur within the last 4 years of the construction schedule (2006-2014). Results from the first period are presented since emission factors will be highest, and this will represent a worse case.
- Assume 8 hours per work day, 22 construction days per month.
- Low VOC emission architectural coatings will be used during building construction; emission factor 0.0013 lb/s.f. surface area.
- Equipment types and quantities were determined by SMAQMD guidance 2004 revised Table 3.1.

Rio del Oro Phase 1 Long-Term Operational Air Quality Modeling Assumptions:

- URBEMIS was adjusted to reflect the exact VMT and number of trips generated by phase 1 as obtained from traffic report are used instead of model defaults (Fehr & Peers 2005).
- URBEMIS model runs were conducted for the *net change* in acreages of the land use types for the HD and IM alternatives relative to the PP.

APPENDIX K-1

NET CHANGE IN LAND USE TYPE FOR THE HIGH DENSITY AND IMPACT MINIMIZATION ALTERNATIVES, PHASE 1: RELATIVE TO THE PROPOSED PROJECT ALTERNATIVE

Unmititgated Operational Emissions

	Proposed Project (PP)			High Density (HD) [net change from PP]						Impact Minimization (IM) [net change from PP]					
Land Use	**ROG**	**NOx**	**PM10**	**ROG**		**NOx**		**PM10**		**ROG**		**NOx**		**PM10**	
Single Family Housing	164.58	188.69	376.1	0	164.58	0	188.69	0	376.1	-44.25	120.33	-44.56	144.13	-88.82	287.28
Apt Low Rise	37.39	36.75	73.26	0.14	37.53	0.13	36.88	0.26	73.52	-1.41	35.98	-1.32	35.43	-2.64	70.62
Apt Mid Rise	14.34	10.97	21.86	0.31	14.65	0.28	11.25	0.55	22.41	59.28	73.62	53.09	64.06	105.81	127.67
Elementary School	7.87	5.79	11.66	0	7.87	0	5.79	0	11.66	0	7.87	0	5.79	0	11.66
High School	67.3	49.73	100.38	0	67.3	0	49.73	0	100.38	0	67.3	0	49.73	0	100.38
City Park	41.51	53.2	107.54	0	41.51	0	53.2	0	107.54	0.22	41.73	0.11	53.31	0.23	107.77
Regional Shopping Cntr	65.63	48.65	98.43	-7.2	58.43	-8.93	39.72	-18.06	80.37	-171.24	-105.61	-212.22	-163.57	-429.34	-330.91
Strip Mall	18.99	14.08	28.48	0	18.99	0	14.08	0	28.48	0	18.99	0	14.08	0	28.48
Office Park	36.57	26.61	53.14	-1.15	35.42	-1.2	25.41	-2.4	50.74	0	36.57	0	26.61	0	53.14
Industrial Park	98.26	121.83	243.74	-18.3	79.96	-17.4	104.43	-34.82	208.92	-18.3	79.96	17.4	139.23	-34.82	208.92
Total (lb/day)	**552.44**	**556.30**	**1114.59**		**526.24**		**529.18**		**1060.12**		**376.74**		**368.8**		**665.01**

APPENDIX K-2

PROPOSED PROJECT ALTERNATIVE, PHASE 1: ISC MODELING EMISSION FACTORS FOR PM_{10}

Proposed Project Alternative, Phase 1: Construction Emissions (See Assumptions)

*This spreadsheet is derived from SMAQMD BEEST PM Modeling Guidance - Appendix C

Bold cells = formulae or constant (do not

Developing Emission Factors

Target year = 2006

1. GRADING / SOIL VOLUME

Volume soil removed = [(A x B x C)/27] + (A x 2 x C x D)

A = Length of area (ft)	4,895.00
B = Width of area (ft)	4,895.00
C = Depth of grading (ft) (use 2.0 unless data available)	0.50
D = Fall-in factor (use 0.0 unless data available)	0.00

TABLE 1

Cubic yards of soil removed	**443,722.69**

2. GRADING / SOIL DENSITY

Tons soil removed = (A x B)/2000

A = Amount of soil removed (cubic yds) (Table 1)	**443,722.69**
B = Soild density (lbs/cubic yd) (use 2528.0 unless data available)	2,528.00

TABLE 2

Tons of soil removed	**560,865.47**

3. EMISSION RATE

Emission factor x Operational time

TABLE 3

1. Emission Factor (lbs/hr)	0.75	(default)
2. Operational Time (hrs/day)	8.00	
3. Emission Rate (lbs/day)	**6.02**	

4. STOCKPILE LOADING EMISSONS

Emission Factor = k(0.0032) x (U/5)^1.3 x (M/2)^-1.4

k = Particle size multiplier (use 0.35)	0.35
U = Mean wind speed (mph) (use 5.1 unless data available)	5.10
M = Material moisture content (%) (use 7.9 unless available)	7.90

TABLE 4

1. Emission Factor (lbs/ton)	**0.00017**
2. Tons Transferred (from Table 2)	**560,865.47**
3. Emission Rate (lbs/day)	**94.19**

5. STOCKPILE WIND EROSION EMISSIONS

Emission Rate = 1.6 x U x 0.5 x A

U = mean wind speed (m/s) (use 2.3 unless data available)	2.30	
A = acres	137.50	URBEMIS

TABLE 5

1. Emission Rate (lbs/hr)	**253.00**
2. Emission Rate (lbs/day)	**6,072.00**

6. MOBILE SOURCE EMISSIONS

TABLE 6

1. Type of Equipment	Crawler tractors	
2. Equipment Used (#)	13.75	URBEMIS

3. Operational Time (hrs/day)	8.00	
4. Emission Factor (lbs/hp-hr)	0.43	SMAQMD
5. Emission Rate (lbs/day)	**5.91**	

1. Type of Equipment	Graders	
2. Equipment Used (#)	13.75	URBEMIS
3. Operational Time (hrs/day)	8.00	
4. Emission Factor (lbs/hp-hr)	0.28	SMAQMD
5. Emission Rate (lbs/day)	**3.85**	

1. Type of Equipment	Off-highway trucks	
2. Equipment Used (#)	13.75	URBEMIS
3. Operational Time (hrs/day)	8.00	
4. Emission Factor (lbs/hp-hr)	0.58	SMAQMD
5. Emission Rate (lbs/day)	**7.98**	

TABLE 7

Mobile Equipment Emission Rate Totals (lbs/day)	**17.74**

7. TOTALS

TABLE 8

1. Table 3, Row 3	**6.02**	
2. Table 4, Row 3	**94.19**	
3. Table 5, Row 2	**6,072.00**	
4. Total	**6,172.22**	Fugitive Emissions (lbs/day)
5. Table 7	**17.74**	Mobile Emissions (lbs/day)

8. CONVERTING TO GRAMS PER SECOND

Emission Factor (grams/sec) = (A / 24 / 60 / 60) x 453.592 grams/lb
A = Emission factor (lbs/day)

TABLE 9

Fugitive Dust Emissions	**32.40**
Mobile PM Emissions	**0.09**

9. DISTRIBUTE POINT SOURCES OVER SITE

If project =< 10 acres, divide by 49
if project > 10 acres, divide by 64

TABLE 10

		Mitigated PM Emission
Fugitive Dust Emissions	**0.5063**	**0.1266**
Mobile PM Emissions	**0.0015**	**0.0008**

Proposed Project Alternative, Phase 1: Construction Emissions (Second Half of Construction) (See Assumptions)

URBEMIS 2002 For Windows 8.7.0

e Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio PP construction.urb
ject Name: Rio Del Oro PP
ject Location: Lower Sacramento Valley Air Basin
Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

STRUCTION EMISSION ESTIMATES

* 2006 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TALS (lbs/day,unmitigated)	99.92	728.56	804.87	1.59	5,281.82	28.89	5,252.93
TALS (lbs/day, mitigated)	95.24	604.65	804.87	1.59	1,330.50	16.94	1,313.56

* 2007 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TALS (lbs/day,unmitigated)	89.64	505.46	801.98	0.05	24.55	22.11	2.44
TALS (lbs/day, mitigated)	86.43	407.46	801.98	0.05	14.73	12.29	2.44

* 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TALS (lbs/day,unmitigated)	87.61	480.64	797.11	0.04	22.62	20.18	2.44
TALS (lbs/day, mitigated)	84.40	387.40	797.11	0.04	13.67	11.23	2.44

* 2009 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TALS (lbs/day,unmitigated)	85.49	455.06	791.43	0.04	21.34	18.90	2.44
TALS (lbs/day, mitigated)	82.28	366.70	791.43	0.04	12.96	10.52	2.44

* 2010 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TALS (lbs/day,unmitigated)	434.34	496.93	1,120.46	0.09	23.63	18.74	4.89
TALS (lbs/day, mitigated)	431.13	413.31	1,120.46	0.09	16.12	11.23	4.89

EA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TALS (lbs/day,unmitigated)	92.74	60.96	72.44	0.15	0.19

ERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TALS (lbs/day,unmitigated)	704.93	792.17	8,241.21	10.44	1,595.97

M OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TALS (lbs/day,unmitigated)	797.67	853.13	8,313.66	10.59	1,596.17

URBEMIS 2002 For Windows 8.7.0

.e Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio PP construction.urb
›ject Name: Rio Del Oro PP
›ject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

ıstruction Start Month and Year: June, 2006
ıstruction Duration: 48
:al Land Use Area to be Developed: 550 acres
:imum Acreage Disturbed Per Day: 137.5 acres
ıgle Family Units: 725 Multi-Family Units: 772
:ail/Office/Institutional/Industrial Square Footage: 9006500

JSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
** 2006***							
ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
:ker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	5,252.50	-	5,252.50
f-Road Diesel	93.67	619.57	768.71	-	26.55	26.55	0.00
-Road Diesel	5.42	108.14	20.00	1.58	2.72	2.32	0.40
:ker Trips	0.83	0.85	15.64	0.01	0.05	0.02	0.03
Maximum lbs/day	99.92	728.56	804.35	1.59	5,281.82	28.89	5,252.93
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	513.75	457.24	-	23.76	23.76	0.00
dg Const Worker Trips	27.35	16.44	347.63	0.05	2.72	0.28	2.44
:h Coatings Off-Gas	0.00	-	-	-	-	-	-
:h Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	91.57	530.19	804.87	0.05	26.48	24.04	2.44
Max lbs/day all phases	99.92	728.56	804.87	1.59	5,281.82	28.89	5,252.93
** 2007***							
ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	489.99	475.22	-	21.83	21.83	0.00
dg Const Worker Trips	25.43	15.47	326.76	0.05	2.72	0.28	2.44
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	89.64	505.46	801.98	0.05	24.55	22.11	2.44
Max lbs/day all phases	89.64	505.46	801.98	0.05	24.55	22.11	2.44

** 2008***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	466.23	492.56	-	19.91	19.91	0.00
dg Const Worker Trips	23.39	14.41	304.55	0.04	2.72	0.28	2.44
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	87.61	480.64	797.11	0.04	22.62	20.18	2.44
Max lbs/day all phases	87.61	480.64	797.11	0.04	22.62	20.18	2.44

** 2009***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	441.83	510.54	-	18.62	18.62	0.00
dg Const Worker Trips	21.27	13.23	280.89	0.04	2.72	0.28	2.44
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	85.49	455.06	791.43	0.04	21.34	18.90	2.44
Max lbs/day all phases	85.49	455.06	791.43	0.04	21.34	18.90	2.44

** 2010***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	19.31	12.10	258.51	0.04	2.72	0.28	2.44
ch Coatings Off-Gas	320.30	-	-	-	-	-	-
ch Coatings Worker Trips	19.31	12.10	258.51	0.04	2.72	0.28	2.44
phalt Off-Gas	2.21	-	-	-	-	-	-

phalt Off-Road Diesel	8.72	50.58	74.13	-	1.40	1.40	0.00
phalt On-Road Diesel	0.22	4.05	0.81	0.01	0.10	0.09	0.01
phalt Worker Trips	0.05	0.03	0.62	0.00	0.01	0.00	0.01
Maximum lbs/day	434.34	496.93	1,120.46	0.09	23.63	18.74	4.89
Max lbs/day all phases	434.34	496.93	1,120.46	0.09	23.63	18.74	4.89

ase 1 - Demolition Assumptions: Phase Turned OFF

ase 2 - Site Grading Assumptions
art Month/Year for Phase 2: Jun '06
ase 2 Duration: 5.3 months
-Road Truck Travel (VMT): 3806
f-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
14	Crawler Tractors	143	0.575	8.0
14	Graders	174	0.575	8.0
14	Off Highway Trucks	417	0.490	8.0

ase 3 - Building Construction Assumptions
art Month/Year for Phase 3: Nov '06
ase 3 Duration: 42.7 months
Start Month/Year for SubPhase Building: Nov '06
SubPhase Building Duration: 42.7 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
41	Other Equipment	190	0.620	6.0

Start Month/Year for SubPhase Architectural Coatings: Jan '10
SubPhase Architectural Coatings Duration: 4.3 months
Start Month/Year for SubPhase Asphalt: Mar '10
SubPhase Asphalt Duration: 2.1 months
Acres to be Paved: 39
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
4	Pavers	132	0.590	8.0
4	Rollers	114	0.430	8.0

anges made to the default values for Land Use Trip Percentages

anges made to the default values for Construction

te Grading Fugitive Dust Emission Rate changed from 10 to 38.2
chitectural Coatings: # ROG/ft2 (residential) changed from 0.0185 to 0.0013
chitectural Coatings: # ROG/ft2 (non-res) changed from 0.0185 to 0.0013
ase 2 mitigation measure Soil Disturbance:
has been changed from off to on.
ase 2 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.
ase 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.

anges made to the default values for Area

e landscape year changed from 2005 to 2015.
e residential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.
e nonresidential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.

anges made to the default values for Operations

e operational emission year changed from 2005 to 2015.
e home based work selection item changed from 8 to 7.
e home based work urban trip length changed from 9.7 to 6.3.
e home based work rural trip length changed from 16.8 to 6.3.
e home based shopping selection item changed from 8 to 7.
e home based shopping urban trip length changed from 3.8 to 6.3.
e home based shopping rural trip length changed from 7.1 to 6.3.
e home based other selection item changed from 8 to 7.
e home based other urban trip length changed from 4.6 to 6.3.
e home based other rural trip length changed from 7.9 to 6.3.
e commercial based commute selection item changed from 8 to 7.
e commercial based commute urban trip length changed from 7.8 to 6.3.
e commercial based commute rural trip length changed from 14.7 to 6.3.
e commercial based non-work selection item changed from 8 to 7.
e commercial based non-work urban trip length changed from 4.5 to 6.3.
e commercial based non-work rural trip length changed from 6.6 to 6.3.
e commercial based customer selection item changed from 8 to 7.
e commercial based customer urban trip length changed from 4.5 to 6.3.
e commercial based customer rural trip length changed from 6.6 to 6.3.

URBEMIS 2002 For Windows 8.7.0

le Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio PP construction part II.urb
oject Name: Rio Del Oro PP
oject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

NSTRUCTION EMISSION ESTIMATES

** 2010 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
OTALS (lbs/day,unmitigated)	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44
OTALS (lbs/day, mitigated)	106.95	381.75	1,442.57	0.54	13.28	10.84	2.44

** 2011 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
OTALS (lbs/day,unmitigated)	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44
OTALS (lbs/day, mitigated)	106.95	381.75	1,442.57	0.54	13.28	10.84	2.44

** 2012 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
OTALS (lbs/day,unmitigated)	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44
OTALS (lbs/day, mitigated)	106.95	381.75	1,442.57	0.54	13.28	10.84	2.44

** 2013 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
OTALS (lbs/day,unmitigated)	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44
OTALS (lbs/day, mitigated)	106.95	381.75	1,442.57	0.54	13.28	10.84	2.44

** 2014 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
OTALS (lbs/day,unmitigated)	427.30	531.61	1,776.54	0.59	24.99	20.10	4.89
OTALS (lbs/day, mitigated)	424.09	448.00	1,776.54	0.59	17.48	12.59	4.89

EA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
OTALS (lbs/day,unmitigated)	92.74	60.96	72.44	0.15	0.19

ERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
OTALS (lbs/day,unmitigated)	704.93	792.17	8,241.21	10.44	1,595.97

M OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
OTALS (lbs/day,unmitigated)	797.67	853.13	8,313.66	10.59	1,596.17

URBEMIS 2002 For Windows 8.7.0

le Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio PP construction part II.urb
oject Name: Rio Del Oro PP
oject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

nstruction Start Month and Year: June, 2010
nstruction Duration: 48
tal Land Use Area to be Developed: 550 acres
ximum Acreage Disturbed Per Day: 137.5 acres
ngle Family Units: 725 Multi-Family Units: 772
tail/Office/Institutional/Industrial Square Footage: 9006500

NSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
** 2010***							
ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	45.94	47.30	914.69	0.54	4.09	1.65	2.44
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44
Max lbs/day all phases	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44
** 2011***							
ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	45.94	47.30	914.69	0.54	4.09	1.65	2.44
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44
Max lbs/day all phases	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44

** 2012***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	45.94	47.30	914.69	0.54	4.09	1.65	2.44
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44
Max lbs/day all phases	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44

** 2013***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	45.94	47.30	914.69	0.54	4.09	1.65	2.44
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44
Max lbs/day all phases	110.16	465.36	1,442.57	0.54	20.79	18.35	2.44

** 2014***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	45.94	47.30	914.69	0.54	4.09	1.65	2.44
ch Coatings Off-Gas	286.94	-	-	-	-	-	-
ch Coatings Worker Trips	19.31	12.10	258.51	0.04	2.72	0.28	2.44
phalt Off-Gas	1.94	-	-	-	-	-	-

phalt Off-Road Diesel	8.72	50.58	74.13	-	1.40	1.40	0.00
phalt On-Road Diesel	0.19	3.54	0.71	0.01	0.09	0.08	0.01
phalt Worker Trips	0.05	0.03	0.62	0.00	0.01	0.00	0.01
Maximum lbs/day	427.30	531.61	1,776.54	0.59	24.99	20.10	4.89
Max lbs/day all phases	427.30	531.61	1,776.54	0.59	24.99	20.10	4.89

ase 2 - Site Grading Assumptions: Phase Turned OFF

ase 3 - Building Construction Assumptions
art Month/Year for Phase 3: Jun '10
ase 3 Duration: 48 months
Start Month/Year for SubPhase Building: Jun '10
SubPhase Building Duration: 48 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
41	Other Equipment	190	0.620	6.0

Start Month/Year for SubPhase Architectural Coatings: Jan '14
SubPhase Architectural Coatings Duration: 4.8 months
Start Month/Year for SubPhase Asphalt: Mar '14
SubPhase Asphalt Duration: 2.4 months
Acres to be Paved: 39
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
4	Pavers	132	0.590	8.0
4	Rollers	114	0.430	8.0

ınges made to the default values for Land Use Trip Percentages

ınges made to the default values for Construction

:hitectural Coatings: # ROG/ft2 (residential) changed from 0.0185 to 0.0013
:hitectural Coatings: # ROG/ft2 (non-res) changed from 0.0185 to 0.0013
ıse 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.

ınges made to the default values for Area

e landscape year changed from 2005 to 2015.
e residential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.
e nonresidential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.

ınges made to the default values for Operations

e operational emission year changed from 2005 to 2015.
e home based work selection item changed from 8 to 7.
e home based work urban trip length changed from 9.7 to 6.3.
e home based work rural trip length changed from 16.8 to 6.3.
e home based shopping selection item changed from 8 to 7.
e home based shopping urban trip length changed from 3.8 to 6.3.
e home based shopping rural trip length changed from 7.1 to 6.3.
e home based other selection item changed from 8 to 7.
e home based other urban trip length changed from 4.6 to 6.3.
e home based other rural trip length changed from 7.9 to 6.3.
e commercial based commute selection item changed from 8 to 7.
e commercial based commute urban trip length changed from 7.8 to 6.3.
e commercial based commute rural trip length changed from 14.7 to 6.3.
e commercial based non-work selection item changed from 8 to 7.
e commercial based non-work urban trip length changed from 4.5 to 6.3.
e commercial based non-work rural trip length changed from 6.6 to 6.3.
e commercial based customer selection item changed from 8 to 7.
e commercial based customer urban trip length changed from 4.5 to 6.3.
e commercial based customer rural trip length changed from 6.6 to 6.3.

Proposed Project Alternative, Phase 1: Area-Source Emissions

URBEMIS 2002 For Windows 8.7.0

ile Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio PP.urb
roject Name: Rio Del Oro PP
roject Location: Lower Sacramento Valley Air Basin
1-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

REA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	8.87	120.22	88.62	0	0.22
Hearth - No summer emissions					
Landscaping	6.32	0.81	49.90	0.29	0.16
Consumer Prdcts	146.48	-	-	-	-
Architectural Coatings	18.92	-	-	-	-
TOTALS(lbs/day,unmitigated)	180.58	121.03	138.53	0.29	0.38

Proposed Project Alternative, Phase 1: Operational Emissions

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
.ngle family housing	164.58	188.69	2,058.64	2.49	376.10
›artments low rise	37.39	36.75	400.99	0.49	73.26
›artments mid rise	14.34	10.97	119.66	0.14	21.86
.ementary school	7.87	5.79	60.53	0.08	11.66
.gh school	67.30	49.73	512.79	0.66	100.38
.ty park	41.51	53.20	544.91	0.70	107.54
›gnl shop. center	65.63	48.65	496.28	0.64	98.43
:rip mall	18.99	14.08	143.59	0.19	28.48
:fice park	36.57	26.61	288.31	0.35	53.14
ıdustrial park	98.26	121.83	1,309.27	1.61	243.74
›TAL EMISSIONS (lbs/day)	552.43	556.31	5,934.96	7.34	1,114.58

›es not include correction for passby trips.
›es not include double counting adjustment for internal trips.

'ERATIONAL (Vehicle) EMISSION ESTIMATES

ıalysis Year: 2015 Temperature (F): 85 Season: Summer

IFAC Version: EMFAC2002 (9/2002)

ımmary of Land Uses:

ıit Type	Acreage	Trip Rate	No. Units	Total Trips
.ngle family housing	483.33	27.11 trips/dwelling unit	1,450.00	39,309.50
›artments low rise	56.50	8.47 trips/dwelling unit	904.00	7,656.88
›artments mid rise	16.84	3.57 trips/dwelling unit	640.00	2,284.80
.ementary school		3.11 trips/1000 sq. ft.	392.00	1,219.12
.gh school		3.11 trips/1000 sq. ft.	3,376.00	10,499.36
.ty park		135.54 trips/acres	83.00	11,249.82
›gnl shop. center		3.11 trips/1000 sq. ft.	3,311.00	10,297.21
:rip mall		3.11 trips/1000 sq. ft.	958.00	2,979.38
:fice park		3.11 trips/1000 sq. ft.	1,786.00	5,554.46
ıdustrial park		135.54 trips/acres	188.00	25,481.52
		Sum of Total Trips		116,532.05
		Total Vehicle Miles Traveled		734,151.92

›hicle Assumptions:

.eet Mix:

›hicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
.ght Auto	54.40	0.40	99.40	0.20
.ght Truck < 3,750 lbs	15.30	0.70	98.00	1.30
.ght Truck 3,751- 5,750	16.40	0.60	98.80	0.60
›d Truck 5,751- 8,500	7.30	0.00	98.60	1.40
.te-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
.te-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
›d-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
›avy-Heavy 33,001-60,000	0.80	0.00	0.00	100.00
.ne Haul > 60,000 lbs	0.00	0.00	0.00	100.00
·ban Bus	0.20	0.00	50.00	50.00
›torcycle	1.60	50.00	50.00	0.00
:hool Bus	0.10	0.00	0.00	100.00
›tor Home	1.50	0.00	93.30	6.70

·avel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
·ban Trip Length (miles)	6.3	6.3	6.3	6.3	6.3	6.3
ıral Trip Length (miles)	6.3	6.3	6.3	6.3	6.3	6.3
·ip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
of Trips - Residential	27.3	21.2	51.5			
of Trips - Commercial (by land use)						
.ementary school				20.0	10.0	70.0
.gh school				10.0	5.0	85.0
.ty park				5.0	2.5	92.5
›gnl shop. center				2.0	1.0	97.0

rip mall	2.0	1.0	97.0
fice park	48.0	24.0	28.0
dustrial park	41.5	20.8	37.8

ıanges made to the default values for Land Use Trip Percentages

ıe Trip Rate and/or Acreage values for Single family housing
ıave changed from the defaults 9.57/483.33 to 27.11/483.33
ıe Trip Rate and/or Acreage values for Apartments low rise
ıave changed from the defaults 6.9/56.5 to 8.47/56.5
ıe Trip Rate and/or Acreage values for Apartments mid rise
ıave changed from the defaults 5.76/16.84 to 3.57/16.84

ıanges made to the default values for Construction

ıte Grading Fugitive Dust Emission Rate changed from 10 to 38.2
rchitectural Coatings: # ROG/ft2 (residential) changed from 0.0185 to 0.0013
rchitectural Coatings: # ROG/ft2 (non-res) changed from 0.0185 to 0.0013
ıase 2 mitigation measure Soil Disturbance:
has been changed from off to on.
ıase 2 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.
ıase 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.

ıanges made to the default values for Area

ıe landscape year changed from 2005 to 2015.
ıe residential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.
ıe nonresidential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.

ıanges made to the default values for Operations

ıe operational emission year changed from 2005 to 2015.
ıe home based work selection item changed from 8 to 7.
ıe home based work urban trip length changed from 9.7 to 6.3.
ıe home based work rural trip length changed from 16.8 to 6.3.
ıe home based shopping selection item changed from 8 to 7.
ıe home based shopping urban trip length changed from 3.8 to 6.3.
ıe home based shopping rural trip length changed from 7.1 to 6.3.
ıe home based other selection item changed from 8 to 7.
ıe home based other urban trip length changed from 4.6 to 6.3.
ıe home based other rural trip length changed from 7.9 to 6.3.
ıe commercial based commute selection item changed from 8 to 7.
ıe commercial based commute urban trip length changed from 7.8 to 6.3.
ıe commercial based commute rural trip length changed from 14.7 to 6.3.
ıe commercial based non-work selection item changed from 8 to 7.
he commercial based non-work urban trip length changed from 4.5 to 6.3.
he commercial based non-work rural trip length changed from 6.6 to 6.3.
he commercial based customer selection item changed from 8 to 7.
he commercial based customer urban trip length changed from 4.5 to 6.3.
he commercial based customer rural trip length changed from 6.6 to 6.3.

APPENDIX K-3

HIGH DENSITY ALTERNATIVE, PHASE 1: ISC MODELING EMISSION FACTORS FOR PM_{10}

*This spreadsheet is derived from SMAQMD BEEST PM Modeling Guidance - Appendix C

Bold cells = formulae or constant (do not

Developing Emission Factors

Target year = 2006

1. GRADING / SOIL VOLUME

Volume soil removed = [(A x B x C)/27] + (A x 2 x C x D)

A = Length of area (ft)	4,895.00
B = Width of area (ft)	4,895.00
C = Depth of grading (ft) (use 2.0 unless data available)	0.50
D = Fall-in factor (use 0.0 unless data available)	0.00

TABLE 1

Cubic yards of soil removed	**443,722.69**

2. GRADING / SOIL DENSITY

Tons soil removed = (A x B)/2000

A = Amount of soil removed (cubic yds) (Table 1)	**443,722.69**
B = Soild density (lbs/cubic yd) (use 2528.0 unless data available)	2,528.00

TABLE 2

Tons of soil removed	**560,865.47**

3. EMISSION RATE

Emission factor x Operational time

TABLE 3

1. Emission Factor (lbs/hr)	0.75	(default)
2. Operational Time (hrs/day)	8.00	
3. Emission Rate (lbs/day)	**6.02**	

4. STOCKPILE LOADING EMISSONS

Emission Factor = k(0.0032) x (U/5)^1.3 x (M/2)^-1.4

k = Particle size multiplier (use 0.35)	0.35
U = Mean wind speed (mph) (use 5.1 unless data available)	5.10
M = Material moisture content (%) (use 7.9 unless available)	7.90

TABLE 4

1. Emission Factor (lbs/ton)	**0.00017**
2. Tons Transferred (from Table 2)	**560,865.47**
3. Emission Rate (lbs/day)	**94.19**

5. STOCKPILE WIND EROSION EMISSIONS

Emission Rate = 1.6 x U x 0.5 x A

U = mean wind speed (m/s) (use 2.3 unless data available)	2.30	
A = acres	137.50	URBEMIS

TABLE 5

1. Emission Rate (lbs/hr)	**253.00**
2. Emission Rate (lbs/day)	**6,072.00**

6. MOBILE SOURCE EMISSIONS

TABLE 6

1. Type of Equipment	Crawler tractors	
2. Equipment Used (#)	13.75	URBEMIS

3. Operational Time (hrs/day)	8.00	
4. Emission Factor (lbs/hp-hr)	0.43	SMAQMD
5. Emission Rate (lbs/day)	**5.91**	

1. Type of Equipment	Graders	
2. Equipment Used (#)	13.75	URBEMIS
3. Operational Time (hrs/day)	8.00	
4. Emission Factor (lbs/hp-hr)	0.28	SMAQMD
5. Emission Rate (lbs/day)	**3.85**	

1. Type of Equipment	Off-highway truck	
2. Equipment Used (#)	13.75	URBEMIS
3. Operational Time (hrs/day)	8.00	
4. Emission Factor (lbs/hp-hr)	0.58	SMAQMD
5. Emission Rate (lbs/day)	**7.98**	

TABLE 7

Mobile Equipment Emission Rate Totals (lbs/day)	**17.74**

7. TOTALS

TABLE 8

1. Table 3, Row 3	**6.02**	
2. Table 4, Row 3	**94.19**	
3. Table 5, Row 2	**6,072.00**	
4. Total	**6,172.22**	Fugitive Emissions (lbs/day)
5. Table 7	**17.74**	Mobile Emissions (lbs/day)

8. CONVERTING TO GRAMS PER SECOND

Emission Factor (grams/sec) = (A / 24 / 60 / 60) x 453.592 grams/lb
A = Emission factor (lbs/day)

TABLE 9

Fugitive Dust Emissions	**32.40**
Mobile PM Emissions	**0.09**

9. DISTRIBUTE POINT SOURCES OVER SITE

If project =< 10 acres, divide by 49
if project > 10 acres, divide by 64

TABLE 10

		Mitigated PM Emission
Fugitive Dust Emissions	**0.5063**	**0.1266**
Mobile PM Emissions	**0.0015**	**0.0008**

High Density Alternative, Phase 1: Construction Emissions
(See Assumptions)

URBEMIS 2002 For Windows 8.7.0

le Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio HD construction.urb
oject Name: Rio Del Oro HD
oject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

NSTRUCTION EMISSION ESTIMATES

** 2006 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
OTALS (lbs/day,unmitigated)	99.92	728.56	804.35	1.59	5,281.82	28.89	5,252.93
OTALS (lbs/day, mitigated)	95.24	604.65	804.35	1.59	1,330.50	16.94	1,313.56

** 2007 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
OTALS (lbs/day,unmitigated)	88.98	505.06	793.47	0.04	24.47	22.10	2.37
OTALS (lbs/day, mitigated)	85.77	407.06	793.47	0.04	14.65	12.28	2.37

** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
OTALS (lbs/day,unmitigated)	87.00	480.27	789.18	0.04	22.55	20.18	2.37
OTALS (lbs/day, mitigated)	83.79	387.02	789.18	0.04	13.59	11.22	2.37

** 2009 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
OTALS (lbs/day,unmitigated)	84.94	454.72	784.11	0.04	21.26	18.89	2.37
OTALS (lbs/day, mitigated)	81.73	366.35	784.11	0.04	12.88	10.51	2.37

** 2010 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
OTALS (lbs/day,unmitigated)	425.77	493.50	1,103.09	0.09	23.40	18.65	4.75
OTALS (lbs/day, mitigated)	422.15	400.29	1,103.09	0.09	15.28	10.53	4.75

EA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
OTALS (lbs/day,unmitigated)	94.15	60.93	72.32	0.15	0.19

ERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
OTALS (lbs/day,unmitigated)	692.76	779.47	8,107.24	10.27	1,570.46

M OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
OTALS (lbs/day,unmitigated)	786.92	840.40	8,179.55	10.42	1,570.66

URBEMIS 2002 For Windows 8.7.0

le Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio HD construction.urb
oject Name: Rio Del Oro HD
oject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

nstruction Start Month and Year: June, 2006
nstruction Duration: 48
tal Land Use Area to be Developed: 550 acres
ximum Acreage Disturbed Per Day: 137.5 acres
ngle Family Units: 725 Multi-Family Units: 806
tail/Office/Institutional/Industrial Square Footage: 8713000

NSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
** 2006***							
ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	5,252.50	-	5,252.50
f-Road Diesel	93.67	619.57	768.71	-	26.55	26.55	0.00
-Road Diesel	5.42	108.14	20.00	1.58	2.72	2.32	0.40
rker Trips	0.83	0.85	15.64	0.01	0.05	0.02	0.03
Maximum lbs/day	99.92	728.56	804.35	1.59	5,281.82	28.89	5,252.93
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	513.75	457.24	-	23.76	23.76	0.00
dg Const Worker Trips	26.64	16.01	338.58	0.04	2.64	0.27	2.37
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	90.86	529.76	795.82	0.04	26.40	24.03	2.37
Max lbs/day all phases	99.92	728.56	804.35	1.59	5,281.82	28.89	5,252.93
** 2007***							
ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	489.99	475.22	-	21.83	21.83	0.00
dg Const Worker Trips	24.76	15.07	318.25	0.04	2.64	0.27	2.37
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	88.98	505.06	793.47	0.04	24.47	22.10	2.37
Max lbs/day all phases	88.98	505.06	793.47	0.04	24.47	22.10	2.37

** 2008***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	466.23	492.56	-	19.91	19.91	0.00
dg Const Worker Trips	22.78	14.04	296.62	0.04	2.64	0.27	2.37
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	87.00	480.27	789.18	0.04	22.55	20.18	2.37
Max lbs/day all phases	87.00	480.27	789.18	0.04	22.55	20.18	2.37

** 2009***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	441.83	510.54	-	18.62	18.62	0.00
dg Const Worker Trips	20.72	12.89	273.57	0.04	2.64	0.27	2.37
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	84.94	454.72	784.11	0.04	21.26	18.89	2.37
Max lbs/day all phases	84.94	454.72	784.11	0.04	21.26	18.89	2.37

** 2010***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	18.81	11.79	251.78	0.04	2.64	0.27	2.37
ch Coatings Off-Gas	313.31	-	-	-	-	-	-
ch Coatings Worker Trips	18.81	11.79	251.78	0.04	2.64	0.27	2.37
phalt Off-Gas	2.10	-	-	-	-	-	-

phalt Off-Road Diesel	8.27	47.99	70.33	-	1.32	1.32	0.00
phalt On-Road Diesel	0.21	3.84	0.77	0.01	0.10	0.09	0.01
phalt Worker Trips	0.04	0.03	0.56	0.00	0.01	0.00	0.01
Maximum lbs/day	425.77	493.50	1,103.09	0.09	23.40	18.65	4.75
Max lbs/day all phases	425.77	493.50	1,103.09	0.09	23.40	18.65	4.75

ase 1 - Demolition Assumptions: Phase Turned OFF

ase 2 - Site Grading Assumptions
art Month/Year for Phase 2: Jun '06
ase 2 Duration: 5.3 months
-Road Truck Travel (VMT): 3806
f-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
14	Crawler Tractors	143	0.575	8.0
14	Graders	174	0.575	8.0
14	Off Highway Trucks	417	0.490	8.0

ase 3 - Building Construction Assumptions
art Month/Year for Phase 3: Nov '06
ase 3 Duration: 42.7 months
Start Month/Year for SubPhase Building: Nov '06
SubPhase Building Duration: 42.7 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
41	Other Equipment	190	0.620	6.0

Start Month/Year for SubPhase Architectural Coatings: Jan '10
SubPhase Architectural Coatings Duration: 4.3 months
Start Month/Year for SubPhase Asphalt: Mar '10
SubPhase Asphalt Duration: 2.1 months
Acres to be Paved: 37
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
4	Pavers	132	0.590	8.0
4	Rollers	114	0.430	8.0

anges made to the default values for Land Use Trip Percentages

anges made to the default values for Construction

te Grading Fugitive Dust Emission Rate changed from 10 to 38.2
chitectural Coatings: # ROG/ft2 (residential) changed from 0.0185 to 0.0013
chitectural Coatings: # ROG/ft2 (non-res) changed from 0.0185 to 0.0013
ase 2 mitigation measure Soil Disturbance:
has been changed from off to on.
ase 2 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.
ase 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.
ase 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.

anges made to the default values for Area

e landscape year changed from 2005 to 2015.
e residential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.
e nonresidential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.

anges made to the default values for Operations

e operational emission year changed from 2005 to 2015.
e home based work selection item changed from 8 to 7.
e home based work urban trip length changed from 9.7 to 6.3.
e home based work rural trip length changed from 16.8 to 6.3.
e home based shopping selection item changed from 8 to 7.
e home based shopping urban trip length changed from 3.8 to 6.3.
e home based shopping rural trip length changed from 7.1 to 6.3.
e home based other selection item changed from 8 to 7.
e home based other urban trip length changed from 4.6 to 6.3.
e home based other rural trip length changed from 7.9 to 6.3.
e commercial based commute selection item changed from 8 to 7.
e commercial based commute urban trip length changed from 7.8 to 6.3.
e commercial based commute rural trip length changed from 14.7 to 6.3.
e commercial based non-work selection item changed from 8 to 7.
e commercial based non-work urban trip length changed from 4.5 to 6.3.
e commercial based non-work rural trip length changed from 6.6 to 6.3.
e commercial based customer selection item changed from 8 to 7.
e commercial based customer urban trip length changed from 4.5 to 6.3.
e commercial based customer rural trip length changed from 6.6 to 6.3.

URBEMIS 2002 For Windows 8.7.0

.e Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio HD construction part II.urb
›ject Name: Rio Del Oro HD
›ject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

NSTRUCTION EMISSION ESTIMATES

** 2010 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
)TALS (lbs/day,unmitigated)	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37
)TALS (lbs/day, mitigated)	105.75	380.52	1,418.75	0.52	13.17	10.80	2.37

** 2011 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
)TALS (lbs/day,unmitigated)	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37
)TALS (lbs/day, mitigated)	105.75	380.52	1,418.75	0.52	13.17	10.80	2.37

** 2012 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
)TALS (lbs/day,unmitigated)	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37
)TALS (lbs/day, mitigated)	105.75	380.52	1,418.75	0.52	13.17	10.80	2.37

** 2013 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
)TALS (lbs/day,unmitigated)	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37
)TALS (lbs/day, mitigated)	105.75	380.52	1,418.75	0.52	13.17	10.80	2.37

** 2014 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
)TALS (lbs/day,unmitigated)	418.78	527.30	1,742.09	0.57	24.73	19.98	4.75
)TALS (lbs/day, mitigated)	415.15	434.09	1,742.09	0.57	16.62	11.87	4.75

EA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
)TALS (lbs/day,unmitigated)	94.15	60.93	72.32	0.15	0.19

ERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
)TALS (lbs/day,unmitigated)	692.76	779.47	8,107.24	10.27	1,570.46

4 OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
)TALS (lbs/day,unmitigated)	786.92	840.40	8,179.55	10.42	1,570.66

URBEMIS 2002 For Windows 8.7.0

le Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio HD construction part II.urb
oject Name: Rio Del Oro HD
oject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

nstruction Start Month and Year: June, 2010
nstruction Duration: 48
tal Land Use Area to be Developed: 550 acres
ximum Acreage Disturbed Per Day: 137.5 acres
ngle Family Units: 725 Multi-Family Units: 806
tail/Office/Institutional/Industrial Square Footage: 8713000

NSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
** 2010***							
ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	44.75	46.06	890.87	0.52	3.98	1.61	2.37
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37
Max lbs/day all phases	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37
** 2011***							
ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	44.75	46.06	890.87	0.52	3.98	1.61	2.37
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37
Max lbs/day all phases	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37
** 2012***							

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	44.75	46.06	890.87	0.52	3.98	1.61	2.37
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37
Max lbs/day all phases	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37

** 2013***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	44.75	46.06	890.87	0.52	3.98	1.61	2.37
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37
Max lbs/day all phases	108.97	464.13	1,418.75	0.52	20.68	18.31	2.37

** 2014***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	64.22	418.07	527.88	-	16.70	16.70	0.00
dg Const Worker Trips	44.75	46.06	890.87	0.52	3.98	1.61	2.37
ch Coatings Off-Gas	280.67	-	-	-	-	-	-
ch Coatings Worker Trips	18.81	11.79	251.78	0.04	2.64	0.27	2.37
phalt Off-Gas	1.84	-	-	-	-	-	-

phalt Off-Road Diesel	8.27	47.99	70.33	-	1.32	1.32	0.00
phalt On-Road Diesel	0.18	3.36	0.68	0.01	0.08	0.07	0.01
phalt Worker Trips	0.04	0.03	0.56	0.00	0.01	0.00	0.01
Maximum lbs/day	418.78	527.30	1,742.09	0.57	24.73	19.98	4.75
Max lbs/day all phases	418.78	527.30	1,742.09	0.57	24.73	19.98	4.75

ase 2 - Site Grading Assumptions: Phase Turned OFF

ase 3 - Building Construction Assumptions
art Month/Year for Phase 3: Jun '10
ase 3 Duration: 48 months
Start Month/Year for SubPhase Building: Jun '10
SubPhase Building Duration: 48 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
41	Other Equipment	190	0.620	6.0

Start Month/Year for SubPhase Architectural Coatings: Jan '14
SubPhase Architectural Coatings Duration: 4.8 months
Start Month/Year for SubPhase Asphalt: Mar '14
SubPhase Asphalt Duration: 2.4 months
Acres to be Paved: 37
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
4	Pavers	132	0.590	8.0
4	Rollers	114	0.430	8.0

anges made to the default values for Land Use Trip Percentages

anges made to the default values for Construction

chitectural Coatings: # ROG/ft2 (residential) changed from 0.0185 to 0.0013
chitectural Coatings: # ROG/ft2 (non-res) changed from 0.0185 to 0.0013
ase 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.
ase 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.

anges made to the default values for Area

e landscape year changed from 2005 to 2015.
e residential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.
e nonresidential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.

anges made to the default values for Operations

e operational emission year changed from 2005 to 2015.
e home based work selection item changed from 8 to 7.
e home based work urban trip length changed from 9.7 to 6.3.
e home based work rural trip length changed from 16.8 to 6.3.
e home based shopping selection item changed from 8 to 7.
e home based shopping urban trip length changed from 3.8 to 6.3.
e home based shopping rural trip length changed from 7.1 to 6.3.
e home based other selection item changed from 8 to 7.
e home based other urban trip length changed from 4.6 to 6.3.
e home based other rural trip length changed from 7.9 to 6.3.
e commercial based commute selection item changed from 8 to 7.
e commercial based commute urban trip length changed from 7.8 to 6.3.
e commercial based commute rural trip length changed from 14.7 to 6.3.
e commercial based non-work selection item changed from 8 to 7.
e commercial based non-work urban trip length changed from 4.5 to 6.3.
e commercial based non-work rural trip length changed from 6.6 to 6.3.
e commercial based customer selection item changed from 8 to 7.
e commercial based customer urban trip length changed from 4.5 to 6.3.
e commercial based customer rural trip length changed from 6.6 to 6.3.

High Density Alternative, Phase 1: Area-Source Emissions

URBEMIS 2002 For Windows 8.7.0

.le Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio HD.urb
:oject Name: Rio Del Oro HD
:oject Location: Lower Sacramento Valley Air Basin
ı-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

ɪEA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	8.83	119.75	88.19	0	0.22
Hearth - No summer emissions					
Landscaping	6.32	0.81	49.90	0.29	0.16
Consumer Prdcts	147.16	-	-	-	-
Architectural Coatings	22.39	-	-	-	-
TOTALS(lbs/day,unmitigated)	184.70	120.56	138.09	0.29	0.38

High Density Alternative, Phase 1: Operational Emissions Relative to Proposed Project Alternative

/08/2005 11:21 AM

URBEMIS 2002 For Windows 8.7.0

le Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio HD net.urb
oject Name: Rio Del Oro HD
oject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
artments low rise +	0.14	0.13	1.45	0.00	0.26
artments mid rise +	0.31	0.28	3.01	0.00	0.55
gnl shop. center —	7.20	8.93	91.06	0.12	18.06
fice park —	1.15	1.20	13.04	0.02	2.40
dustrial park —	18.30	17.40	187.03	0.23	34.82
TAL EMISSIONS (lbs/day)	27.10	27.94	295.59	0.37	56.10

es not include correction for passby trips.
es not include double counting adjustment for internal trips.

ERATIONAL (Vehicle) EMISSION ESTIMATES

alysis Year: 2015 Temperature (F): 85 Season: Summer

FAC Version: EMFAC2002 (9/2002)

mmary of Land Uses:

it Type	Acreage	Trip Rate	No. Units	Total Trips
artments low rise	0.25	6.90 trips/dwelling unit	4.00	27.60
artments mid rise	0.26	5.75 trips/dwelling unit	10.00	57.50
gnl shop. center		42.94 trips/1000 sq. ft.	44.00	1,889.36
fice park		11.42 trips/1000 sq. ft.	22.00	251.24
dustrial park		6.96 trips/1000 sq. ft.	523.00	3,640.08
		Sum of Total Trips		5,865.78
		Total Vehicle Miles Traveled		36,954.41

hicle Assumptions:

eet Mix:

hicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
ght Auto	54.40	0.40	99.40	0.20
ght Truck < 3,750 lbs	15.30	0.70	98.00	1.30
ght Truck 3,751- 5,750	16.40	0.60	98.80	0.60
d Truck 5,751- 8,500	7.30	0.00	98.60	1.40
te-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
te-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
d-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
avy-Heavy 33,001-60,000	0.80	0.00	0.00	100.00
ne Haul > 60,000 lbs	0.00	0.00	0.00	100.00
ban Bus	0.20	0.00	50.00	50.00
torcycle	1.60	50.00	50.00	0.00
hool Bus	0.10	0.00	0.00	100.00
tor Home	1.50	0.00	93.30	6.70

avel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
ban Trip Length (miles)	6.3	6.3	6.3	6.3	6.3	6.3
ral Trip Length (miles)	6.3	6.3	6.3	6.3	6.3	6.3
ip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
of Trips - Residential	27.3	21.2	51.5			
of Trips - Commercial (by land use)						
gnl shop. center				2.0	1.0	97.0
fice park				48.0	24.0	28.0
dustrial park				41.5	20.8	37.8

APPENDIX K-4

IMPACT MINIMIZATION ALTERNATIVE, PHASE 1: EMISSION FACTORS FOR PM_{10}

Impact Minimization Alternative - Phase 1

*This spreadsheet is derived from SMAQMD BEEST PM Modeling Guidance - Appendix C

Bold cells = formulae or constant (do not

Developing Emission Factors

Target year = 2006

1. GRADING / SOIL VOLUME

Volume soil removed = [(A x B x C)/27] + (A x 2 x C x D)

A = Length of area (ft)	4,510.00
B = Width of area (ft)	4,510.00
C = Depth of grading (ft) (use 2.0 unless data available)	0.50
D = Fall-in factor (use 0.0 unless data available)	0.00

TABLE 1

Cubic yards of soil removed	**376,668.52**

2. GRADING / SOIL DENSITY

Tons soil removed = (A x B)/2000

A = Amount of soil removed (cubic yds) (Table 1)	**376,668.52**
B = Soild density (lbs/cubic yd) (use 2528.0 unless data available)	2,528.00

TABLE 2

Tons of soil removed	**476,109.01**

3. EMISSION RATE

Emission factor x Operational time

TABLE 3

1. Emission Factor (lbs/hr)	0.75	(default)
2. Operational Time (hrs/day)	8.00	
3. Emission Rate (lbs/day)	**6.02**	

4. STOCKPILE LOADING EMISSONS

Emission Factor = k(0.0032) x (U/5)^1.3 x (M/2)^-1.4

k = Particle size multiplier (use 0.35)	0.35
U = Mean wind speed (mph) (use 5.1 unless data available)	5.10
M = Material moisture content (%) (use 7.9 unless available)	7.90

TABLE 4

1. Emission Factor (lbs/ton)	**0.00017**
2. Tons Transferred (from Table 2)	**476,109.01**
3. Emission Rate (lbs/day)	**79.96**

5. STOCKPILE WIND EROSION EMISSIONS

Emission Rate = 1.6 x U x 0.5 x A

U = mean wind speed (m/s) (use 2.3 unless data available)	2.30	
A = acres	117.00	URBEMIS

TABLE 5

1. Emission Rate (lbs/hr)	**215.28**
2. Emission Rate (lbs/day)	**5,166.72**

6. MOBILE SOURCE EMISSIONS

TABLE 6

1. Type of Equipment	Crawler tractors

2. Equipment Used (#)	11.70	URBEMIS
3. Operational Time (hrs/day)	8.00	
4. Emission Factor (lbs/hp-hr)	0.43	SMAQMD
5. Emission Rate (lbs/day)	**5.03**	

1. Type of Equipment	Graders	
2. Equipment Used (#)	11.70	URBEMIS
3. Operational Time (hrs/day)	8.00	
4. Emission Factor (lbs/hp-hr)	0.28	SMAQMD
5. Emission Rate (lbs/day)	**3.28**	

1. Type of Equipment	Off-highway truck	
2. Equipment Used (#)	11.70	URBEMIS
3. Operational Time (hrs/day)	8.00	
4. Emission Factor (lbs/hp-hr)	0.58	SMAQMD
5. Emission Rate (lbs/day)	**6.79**	

TABLE 7

Mobile Equipment Emission Rate Totals (lbs/day)	**15.09**

7. TOTALS

TABLE 8

1. Table 3, Row 3	**6.02**	
2. Table 4, Row 3	**79.96**	
3. Table 5, Row 2	**5,166.72**	
4. Total	**5,252.70**	Fugitive Emissions (lbs/day)
5. Table 7	**15.09**	Mobile Emissions (lbs/day)

8. CONVERTING TO GRAMS PER SECOND

Emission Factor (grams/sec) = (A / 24 / 60 / 60) x 453.592 grams/lb
A = Emission factor (lbs/day)

TABLE 9

Fugitive Dust Emissions	**27.58**
Mobile PM Emissions	**0.08**

9. DISTRIBUTE POINT SOURCES OVER SITE

If project =< 10 acres, divide by 49
if project > 10 acres, divide by 64

TABLE 10

		Mitigated PM Emission
Fugitive Dust Emissions	**0.4309**	**0.1077**
Mobile PM Emissions	**0.0012**	**0.0007**

Impact Minimization Alternative, Phase 1: Construction Emissions (See Assumptions)

URBEMIS 2002 For Windows 8.7.0

.e Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio IM construction.urb
›ject Name: Rio Del Oro IM
›ject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

JSTRUCTION EMISSION ESTIMATES

** 2006 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
)TALS (lbs/day,unmitigated)	85.01	619.74	710.23	1.35	4,494.35	24.58	4,469.77
)TALS (lbs/day, mitigated)	81.02	514.30	710.23	1.35	1,132.14	14.41	1,117.72

** 2007 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
)TALS (lbs/day,unmitigated)	78.13	431.23	706.25	0.04	21.08	18.83	2.25
)TALS (lbs/day, mitigated)	75.40	347.84	706.25	0.04	12.72	10.47	2.25

** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
)TALS (lbs/day,unmitigated)	76.25	410.03	700.49	0.03	19.45	17.20	2.25
)TALS (lbs/day, mitigated)	73.52	330.69	700.49	0.03	11.82	9.57	2.25

** 2009 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
)TALS (lbs/day,unmitigated)	74.30	388.18	693.92	0.03	18.35	16.10	2.25
)TALS (lbs/day, mitigated)	71.57	312.99	693.92	0.03	11.22	8.97	2.25

** 2010 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
)TALS (lbs/day,unmitigated)	394.28	429.96	998.49	0.07	20.64	16.13	4.51
)TALS (lbs/day, mitigated)	391.13	349.21	998.49	0.07	13.65	9.14	4.51

EA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
)TALS (lbs/day,unmitigated)	246.23	56.07	53.63	0.05	0.14

ERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
)TALS (lbs/day,unmitigated)	614.45	678.68	7,079.29	8.94	1,366.56

4 OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
)TALS (lbs/day,unmitigated)	860.68	734.75	7,132.92	8.99	1,366.70

URBEMIS 2002 For Windows 8.7.0

.e Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio IM construction.urb
›ject Name: Rio Del Oro IM
›ject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

ıstruction Start Month and Year: June, 2006
ıstruction Duration: 48
:al Land Use Area to be Developed: 467 acres
:imum Acreage Disturbed Per Day: 117 acres
ıgle Family Units: 240 Multi-Family Units: 1616
:ail/Office/Institutional/Industrial Square Footage: 8235000

ISTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
** 2006***							
ıse 1 - Demolition Emissions							
;itive Dust	-	-	-	-	0.00	-	0.00
:-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
:ker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ıse 2 - Site Grading Emissions							
;itive Dust	-	-	-	-	4,469.40	-	4,469.40
:-Road Diesel	79.71	527.20	654.10	-	22.59	22.59	0.00
-Road Diesel	4.60	91.82	16.98	1.34	2.31	1.97	0.34
:ker Trips	0.70	0.72	13.23	0.01	0.05	0.02	0.03
Maximum lbs/day	85.01	619.74	684.31	1.35	4,494.35	24.58	4,469.77
ıse 3 - Building Construction							
;g Const Off-Road Diesel	54.64	437.16	389.07	-	20.22	20.22	0.00
;g Const Worker Trips	25.27	15.19	321.16	0.04	2.51	0.26	2.25
:h Coatings Off-Gas	0.00	-	-	-	-	-	-
:h Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
›halt Off-Gas	0.00	-	-	-	-	-	-
›halt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
›halt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
›halt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	79.91	452.34	710.23	0.04	22.72	20.47	2.25
Max lbs/day all phases	85.01	619.74	710.23	1.35	4,494.35	24.58	4,469.77
** 2007***							
ıse 1 - Demolition Emissions							
;itive Dust	-	-	-	-	0.00	-	0.00
:-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
:ker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ıse 2 - Site Grading Emissions							
;itive Dust	-	-	-	-	0.00	-	0.00
:-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
:ker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ıse 3 - Building Construction							
;g Const Off-Road Diesel	54.64	416.94	404.37	-	18.58	18.58	0.00
;g Const Worker Trips	23.49	14.29	301.88	0.04	2.51	0.26	2.25
:h Coatings Off-Gas	0.00	-	-	-	-	-	-
:h Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
›halt Off-Gas	0.00	-	-	-	-	-	-
›halt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
›halt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
›halt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	78.13	431.23	706.25	0.04	21.08	18.83	2.25
Max lbs/day all phases	78.13	431.23	706.25	0.04	21.08	18.83	2.25

** 2008***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	54.64	396.72	419.12	-	16.94	16.94	0.00
dg Const Worker Trips	21.61	13.31	281.36	0.03	2.51	0.26	2.25
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	76.25	410.03	700.49	0.03	19.45	17.20	2.25
Max lbs/day all phases	76.25	410.03	700.49	0.03	19.45	17.20	2.25

** 2009***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	54.64	375.96	434.43	-	15.85	15.85	0.00
dg Const Worker Trips	19.65	12.23	259.50	0.03	2.51	0.26	2.25
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	74.30	388.18	693.92	0.03	18.35	16.10	2.25
Max lbs/day all phases	74.30	388.18	693.92	0.03	18.35	16.10	2.25

** 2010***

ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	54.64	355.74	449.18	-	14.21	14.21	0.00
dg Const Worker Trips	17.84	11.18	238.83	0.03	2.51	0.26	2.25
ch Coatings Off-Gas	293.33	-	-	-	-	-	-
ch Coatings Worker Trips	17.84	11.18	238.83	0.03	2.51	0.26	2.25
phalt Off-Gas	2.10	-	-	-	-	-	-

phalt Off-Road Diesel	8.27	47.99	70.33	-	1.32	1.32	0.00
phalt On-Road Diesel	0.21	3.84	0.77	0.01	0.10	0.09	0.01
phalt Worker Trips	0.04	0.03	0.56	0.00	0.01	0.00	0.01
Maximum lbs/day	394.28	429.96	998.49	0.07	20.64	16.13	4.51
Max lbs/day all phases	394.28	429.96	998.49	0.07	20.64	16.13	4.51

ase 1 - Demolition Assumptions: Phase Turned OFF

ase 2 - Site Grading Assumptions
art Month/Year for Phase 2: Jun '06
ase 2 Duration: 5.3 months
-Road Truck Travel (VMT): 3230
f-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
12	Crawler Tractors	143	0.575	8.0
12	Graders	174	0.575	8.0
12	Off Highway Trucks	417	0.490	8.0

ase 3 - Building Construction Assumptions
art Month/Year for Phase 3: Nov '06
ase 3 Duration: 42.7 months
Start Month/Year for SubPhase Building: Nov '06
SubPhase Building Duration: 42.7 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
35	Other Equipment	190	0.620	6.0

Start Month/Year for SubPhase Architectural Coatings: Jan '10
SubPhase Architectural Coatings Duration: 4.3 months
Start Month/Year for SubPhase Asphalt: Mar '10
SubPhase Asphalt Duration: 2.1 months
Acres to be Paved: 37
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
4	Pavers	132	0.590	8.0
4	Rollers	114	0.430	8.0

anges made to the default values for Land Use Trip Percentages

anges made to the default values for Construction

te Grading Fugitive Dust Emission Rate changed from 10 to 38.2
chitectural Coatings: # ROG/ft2 (residential) changed from 0.0185 to 0.0013
chitectural Coatings: # ROG/ft2 (non-res) changed from 0.0185 to 0.0013
ase 2 mitigation measure Soil Disturbance:
has been changed from off to on.
ase 2 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.
ase 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.
ase 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.

anges made to the default values for Area

e landscape year changed from 2005 to 2015.

anges made to the default values for Operations

e operational emission year changed from 2005 to 2015.
e home based work selection item changed from 8 to 7.
e home based work urban trip length changed from 9.7 to 6.3.
e home based work rural trip length changed from 16.8 to 6.3.
e home based shopping selection item changed from 8 to 7.
e home based shopping urban trip length changed from 3.8 to 6.3.
e home based shopping rural trip length changed from 7.1 to 6.3.
e home based other selection item changed from 8 to 7.
e home based other urban trip length changed from 4.6 to 6.3.
e home based other rural trip length changed from 7.9 to 6.3.
e commercial based commute selection item changed from 8 to 7.
e commercial based commute urban trip length changed from 7.8 to 6.3.
e commercial based commute rural trip length changed from 14.7 to 6.3.
e commercial based non-work selection item changed from 8 to 7.
e commercial based non-work urban trip length changed from 4.5 to 6.3.
e commercial based non-work rural trip length changed from 6.6 to 6.3.
e commercial based customer selection item changed from 8 to 7.
e commercial based customer urban trip length changed from 4.5 to 6.3.
e commercial based customer rural trip length changed from 6.6 to 6.3.

URBEMIS 2002 For Windows 8.7.0

e Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio IM construction part II.urb
ject Name: Rio Del Oro IM
ject Location: Lower Sacramento Valley Air Basin
Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

STRUCTION EMISSION ESTIMATES

* 2010 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TALS (lbs/day,unmitigated)	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25
TALS (lbs/day, mitigated)	94.36	328.28	1,294.22	0.50	11.59	9.34	2.25

* 2011 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TALS (lbs/day,unmitigated)	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25
TALS (lbs/day, mitigated)	94.36	328.28	1,294.22	0.50	11.59	9.34	2.25

* 2012 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TALS (lbs/day,unmitigated)	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25
TALS (lbs/day, mitigated)	94.36	328.28	1,294.22	0.50	11.59	9.34	2.25

* 2013 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TALS (lbs/day,unmitigated)	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25
TALS (lbs/day, mitigated)	94.36	328.28	1,294.22	0.50	11.59	9.34	2.25

* 2014 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TALS (lbs/day,unmitigated)	388.03	461.99	1,604.61	0.54	21.91	17.40	4.51
TALS (lbs/day, mitigated)	384.89	381.24	1,604.61	0.54	14.91	10.40	4.51

A SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TALS (lbs/day,unmitigated)	246.23	56.07	53.63	0.05	0.14

RATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TALS (lbs/day,unmitigated)	614.45	678.68	7,079.29	8.94	1,366.56

I OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TALS (lbs/day,unmitigated)	860.68	734.75	7,132.92	8.99	1,366.70

URBEMIS 2002 For Windows 8.7.0

le Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio IM construction part II.urb
ɔject Name: Rio Del Oro IM
ɔject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

ıstruction Start Month and Year: June, 2010
ıstruction Duration: 48
:al Land Use Area to be Developed: 467 acres
ximum Acreage Disturbed Per Day: 117 acres
ıgle Family Units: 240 Multi-Family Units: 1616
:ail/Office/Institutional/Industrial Square Footage: 8235000

NSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
** 2010***							
ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	54.64	355.74	449.18	-	14.21	14.21	0.00
dg Const Worker Trips	42.44	43.69	845.04	0.50	3.78	1.53	2.25
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25
Max lbs/day all phases	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25
** 2011***							
ase 1 - Demolition Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 2 - Site Grading Emissions							
gitive Dust	-	-	-	-	0.00	-	0.00
f-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
rker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ase 3 - Building Construction							
dg Const Off-Road Diesel	54.64	355.74	449.18	-	14.21	14.21	0.00
dg Const Worker Trips	42.44	43.69	845.04	0.50	3.78	1.53	2.25
ch Coatings Off-Gas	0.00	-	-	-	-	-	-
ch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Off-Gas	0.00	-	-	-	-	-	-
phalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
phalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
phalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25
Max lbs/day all phases	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25

** 2012***

se 1 - Demolition Emissions							
itive Dust	-	-	-	-	0.00	-	0.00
-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
laximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
se 2 - Site Grading Emissions							
itive Dust	-	-	-	-	0.00	-	0.00
-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
laximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
se 3 - Building Construction							
lg Const Off-Road Diesel	54.64	355.74	449.18	-	14.21	14.21	0.00
lg Const Worker Trips	42.44	43.69	845.04	0.50	3.78	1.53	2.25
h Coatings Off-Gas	0.00	-	-	-	-	-	-
h Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
halt Off-Gas	0.00	-	-	-	-	-	-
halt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
halt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
halt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
laximum lbs/day	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25
lax lbs/day all phases	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25

** 2013***

se 1 - Demolition Emissions							
itive Dust	-	-	-	-	0.00	-	0.00
-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
laximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
se 2 - Site Grading Emissions							
itive Dust	-	-	-	-	0.00	-	0.00
-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
laximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
se 3 - Building Construction							
lg Const Off-Road Diesel	54.64	355.74	449.18	-	14.21	14.21	0.00
lg Const Worker Trips	42.44	43.69	845.04	0.50	3.78	1.53	2.25
h Coatings Off-Gas	0.00	-	-	-	-	-	-
h Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
halt Off-Gas	0.00	-	-	-	-	-	-
halt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
halt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
halt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
laximum lbs/day	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25
lax lbs/day all phases	97.09	399.43	1,294.22	0.50	17.99	15.74	2.25

** 2014***

se 1 - Demolition Emissions							
itive Dust	-	-	-	-	0.00	-	0.00
-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
laximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
se 2 - Site Grading Emissions							
itive Dust	-	-	-	-	0.00	-	0.00
-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
laximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
se 3 - Building Construction							
lg Const Off-Road Diesel	54.64	355.74	449.18	-	14.21	14.21	0.00
lg Const Worker Trips	42.44	43.69	845.04	0.50	3.78	1.53	2.25
h Coatings Off-Gas	262.77	-	-	-	-	-	-
h Coatings Worker Trips	17.84	11.18	238.83	0.03	2.51	0.26	2.25
halt Off-Gas	1.84	-	-	-	-	-	-

phalt Off-Road Diesel	8.27	47.99	70.33	-	1.32	1.32	0.00
phalt On-Road Diesel	0.18	3.36	0.68	0.01	0.08	0.07	0.01
phalt Worker Trips	0.04	0.03	0.56	0.00	0.01	0.00	0.01
Maximum lbs/day	388.03	461.99	1,604.61	0.54	21.91	17.40	4.51
Max lbs/day all phases	388.03	461.99	1,604.61	0.54	21.91	17.40	4.51

ase 2 - Site Grading Assumptions: Phase Turned OFF

ase 3 - Building Construction Assumptions
art Month/Year for Phase 3: Jun '10
ase 3 Duration: 48 months
Start Month/Year for SubPhase Building: Jun '10
SubPhase Building Duration: 48 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
35	Other Equipment	190	0.620	6.0

Start Month/Year for SubPhase Architectural Coatings: Jan '14
SubPhase Architectural Coatings Duration: 4.8 months
Start Month/Year for SubPhase Asphalt: Mar '14
SubPhase Asphalt Duration: 2.4 months
Acres to be Paved: 37
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
4	Pavers	132	0.590	8.0
4	Rollers	114	0.430	8.0

nges made to the default values for Land Use Trip Percentages

nges made to the default values for Construction

chitectural Coatings: # ROG/ft2 (residential) changed from 0.0185 to 0.0013
chitectural Coatings: # ROG/ft2 (non-res) changed from 0.0185 to 0.0013
se 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.
se 3 mitigation measure Off-Road Diesel Exhaust:
has been changed from off to on.

nges made to the default values for Area

landscape year changed from 2005 to 2015.

nges made to the default values for Operations

operational emission year changed from 2005 to 2015.
home based work selection item changed from 8 to 7.
home based work urban trip length changed from 9.7 to 6.3.
home based work rural trip length changed from 16.8 to 6.3.
home based shopping selection item changed from 8 to 7.
home based shopping urban trip length changed from 3.8 to 6.3.
home based shopping rural trip length changed from 7.1 to 6.3.
home based other selection item changed from 8 to 7.
home based other urban trip length changed from 4.6 to 6.3.
home based other rural trip length changed from 7.9 to 6.3.
commercial based commute selection item changed from 8 to 7.
commercial based commute urban trip length changed from 7.8 to 6.3.
commercial based commute rural trip length changed from 14.7 to 6.3.
commercial based non-work selection item changed from 8 to 7.
commercial based non-work urban trip length changed from 4.5 to 6.3.
commercial based non-work rural trip length changed from 6.6 to 6.3.
commercial based customer selection item changed from 8 to 7.
commercial based customer urban trip length changed from 4.5 to 6.3.
commercial based customer rural trip length changed from 6.6 to 6.3.

Impact Minimization Alternative, Phase 1: Area-Source Emissions

URBEMIS 2002 For Windows 8.7.0

le Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio IM.urb
oject Name: Rio Del Oro IM
oject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

EA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
atural Gas	8.18	110.68	80.38	0	0.20
earth - No summer emissions					
andscaping	2.63	0.32	20.32	0.10	0.06
onsumer Prdcts	181.60	-	-	-	-
rchitectural Coatings	21.00	-	-	-	-
OTALS(lbs/day,unmitigated)	213.41	111.01	100.70	0.10	0.26

Impact Minimization Alternative, Phase 1: Operational Emissions Relative to the Proposed Project Alternative (Based on Net Change in Land Use)

/08/2005 1:47 PM

URBEMIS 2002 For Windows 8.7.0

le Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Rio\Rio IM net.urb
oject Name: Rio Del Oro IM
oject Location: Lower Sacramento Valley Air Basin
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
ngle family housing	44.25	44.56	486.15	0.59	88.82
artments low rise	1.41	1.32	14.45	0.02	2.64
artments mid rise	59.28	53.09	579.17	0.70	105.81
ty park	0.22	0.11	1.16	0.00	0.23
gnl shop. center	171.24	212.22	2,164.70	2.79	429.34
dustrial park	18.30	17.40	187.03	0.23	34.82
TAL EMISSIONS (lbs/day)	294.71	328.71	3,432.66	4.33	661.65

es not include correction for passby trips.
es not include double counting adjustment for internal trips.

ERATIONAL (Vehicle) EMISSION ESTIMATES

alysis Year: 2015 Temperature (F): 85 Season: Summer

FAC Version: EMFAC2002 (9/2002)

mmary of Land Uses:

it Type	Acreage	Trip Rate	No. Units	Total Trips
ngle family housing	323.33	9.57 trips/dwelling unit	970.00	9,282.90
artments low rise	2.50	6.90 trips/dwelling unit	40.00	276.00
artments mid rise	50.53	5.76 trips/dwelling unit	1,920.00	11,059.20
ty park		1.59 trips/acres	15.00	23.85
gnl shop. center		42.94 trips/1000 sq. ft.	1,046.00	44,915.24
dustrial park		6.96 trips/1000 sq. ft.	523.00	3,640.08
		Sum of Total Trips		69,197.27
		Total Vehicle Miles Traveled		435,942.80

hicle Assumptions:

eet Mix:

hicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
ght Auto	54.40	0.40	99.40	0.20
ght Truck < 3,750 lbs	15.30	0.70	98.00	1.30
ght Truck 3,751- 5,750	16.40	0.60	98.80	0.60
d Truck 5,751- 8,500	7.30	0.00	98.60	1.40
te-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
te-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
d-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
avy-Heavy 33,001-60,000	0.80	0.00	0.00	100.00
ne Haul > 60,000 lbs	0.00	0.00	0.00	100.00
ban Bus	0.20	0.00	50.00	50.00
torcycle	1.60	50.00	50.00	0.00
hool Bus	0.10	0.00	0.00	100.00
tor Home	1.50	0.00	93.30	6.70

avel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
ban Trip Length (miles)	6.3	6.3	6.3	6.3	6.3	6.3
ral Trip Length (miles)	6.3	6.3	6.3	6.3	6.3	6.3
ip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
of Trips - Residential	27.3	21.2	51.5			

of Trips - Commercial (by land use)

ty park	5.0	2.5	92.5
gnl shop. center	2.0	1.0	97.0
dustrial park	41.5	20.8	37.8

APPENDIX K-5

CARBON MONOXIDE MODELING DATA FOR AFFECTED INTERSECTIONS—PROPOSED PROJECT ALTERNATIVE ONLY

C4_Int5 baseline

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Intersection 5 - baseline
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	0	6	0	150	AG	990	5.3	.0	11.0
B. NB Dep	4	6	4	150	AG	360	5.3	.0	11.0
C. NB Apr	2	-6	2	-150	AG	240	5.0	.0	14.6
D. SB Dep	-4	-6	-4	-150	AG	820	5.3	.0	14.6
E. EB Apr	-4	-2	-150	-2	AG	230	5.3	.0	14.6
F. WB Dep	-4	4	-150	4	AG	280	4.1	.0	14.6

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	9	0	1.8
2. Recpt 2	-9	-9	1.8
3. Recpt 3	-5	9	1.8
4. Recpt 4	13	0	1.8
5. Recpt 5	-13	-13	1.8
6. Recpt 6	-9	13	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F
1. Recpt 1	354.	1.0	.6	.4	.0	.0	.0	.0
2. Recpt 2	8.	1.1	.7	.2	.0	.0	.0	.0
3. Recpt 3	5.	1.5	1.2	.2	.0	.0	.0	.0
4. Recpt 4	351.	.7	.5	.3	.0	.0	.0	.0
5. Recpt 5	10.	.8	.5	.2	.0	.0	.0	.0
6. Recpt 6	9.	.8	.6	.2	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Intersection 5 - baseline+ph1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	0	6	0	150	AG	1240	5.3	.0	11.0
B. NB Dep	4	6	4	150	AG	540	5.3	.0	11.0
C. NB Apr	2	-6	2	-150	AG	350	5.3	.0	14.6
D. SB Dep	-4	-6	-4	-150	AG	980	5.3	.0	14.6
E. EB Apr	-4	-2	-150	-2	AG	300	5.3	.0	14.6
F. WB Dep	-4	4	-150	4	AG	370	5.1	.0	14.6

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	9	0	1.8
2. Recpt 2	-9	-9	1.8
3. Recpt 3	-5	9	1.8
4. Recpt 4	13	0	1.8
5. Recpt 5	-13	-13	1.8
6. Recpt 6	-9	13	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F
1. Recpt 1	354.	1.4	.8	.6	.0	.0	.0	.0
2. Recpt 2	8.	1.3	.8	.3	.0	.0	.0	.0
3. Recpt 3	5.	1.8	1.5	.3	.0	.0	.0	.0
4. Recpt 4	351.	.9	.6	.4	.0	.0	.0	.0
5. Recpt 5	11.	1.0	.6	.2	.0	.0	.0	.0
6. Recpt 6	9.	1.0	.8	.3	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 9 - baseline
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-4	7	-4	150	AG	3210	5.3	.0	29.3
B. NB Dep	9	7	9	150	AG	1050	5.3	.0	29.3
C. WB Apr	13	2	150	2	AG	570	5.3	.0	18.3
D. EB Dep	13	-6	150	-6	AG	1620	5.3	.0	18.3
E. NB Apr	4	-7	4	-150	AG	810	5.3	.0	25.6
F. SB Dep	-7	-7	-7	-150	AG	2010	5.3	.0	25.6
G. EB Apr	-150	-2	-13	-2	AG	700	5.3	.0	18.3
H. WB Dep	-150	6	-13	6	AG	610	5.0	.0	18.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	16	10	1.8
2. Recpt 2	16	-10	1.8
3. Recpt 3	-16	-10	1.8
4. Recpt 4	-16	10	1.8
5. Recpt 5	20	14	1.8
6. Recpt 6	20	-14	1.8
7. Recpt 7	-20	-14	1.8
8. Recpt 8	-20	14	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	347.	1.6	1.1	.5	.0	.0	.0	.0	.0	.0
2. Recpt 2	350.	2.0	1.1	.4	.1	.4	.0	.0	.0	.0
3. Recpt 3	8.	1.8	1.3	.2	.0	.0	.0	.0	.2	.1
4. Recpt 4	11.	1.9	1.6	.2	.0	.0	.0	.0	.0	.0
5. Recpt 5	263.	1.4	.6	.2	.0	.0	.0	.0	.3	.3
6. Recpt 6	347.	1.9	.9	.3	.1	.5	.0	.0	.0	.0
7. Recpt 7	11.	1.8	1.2	.2	.0	.0	.0	.1	.2	.1

						C4_INT~3					
8. Recpt 8	*	100.	*	1.8	*	.8	.1	.3	.5	.0	.0	.0	.0

C4_INT~4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 9 - baseline+ph1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-4	7	-4	150	AG	4030	5.3	.0	29.3
B. NB Dep	9	7	9	150	AG	1520	5.3	.0	29.3
C. WB Apr	13	2	150	2	AG	860	5.3	.0	18.3
D. EB Dep	13	-6	150	-6	AG	1880	5.3	.0	18.3
E. NB Apr	4	-7	4	-150	AG	1260	5.3	.0	25.6
F. SB Dep	-7	-7	-7	-150	AG	2710	5.3	.0	25.6
G. EB Apr	-150	-2	-13	-2	AG	900	5.3	.0	18.3
H. WB Dep	-150	6	-13	6	AG	940	5.3	.0	18.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	16	10	1.8
2. Recpt 2	16	-10	1.8
3. Recpt 3	-16	-10	1.8
4. Recpt 4	-16	10	1.8
5. Recpt 5	20	14	1.8
6. Recpt 6	20	-14	1.8
7. Recpt 7	-20	-14	1.8
8. Recpt 8	-20	14	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	347.	2.1	1.4	.7	.0	.0	.0	.0	.0	.0
2. Recpt 2	350.	2.5	1.3	.6	.2	.4	.0	.0	.0	.0
3. Recpt 3	8.	2.4	1.6	.3	.0	.0	.0	.0	.3	.2
4. Recpt 4	11.	2.4	2.0	.3	.0	.0	.0	.0	.0	.0
5. Recpt 5	263.	1.9	.7	.3	.0	.0	.0	.0	.3	.5
6. Recpt 6	347.	2.4	1.1	.5	.2	.6	.0	.0	.0	.0
7. Recpt 7	11.	2.3	1.4	.3	.0	.0	.0	.2	.2	.2

						C4_INT~4					
8. Recpt 8	*	99. *	2.3 *	1.0	.2	.4	.6	.0	.0	.0	.0

C48974~1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 15 - baseline
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-7	13	-7	150	AG	1550	5.3	.0	36.6
B. NB Dep	11	13	11	150	AG	3100	5.3	.0	36.6
C. WB Apr	18	6	150	6	AG	1300	5.3	.0	29.3
D. EB Dep	18	-7	150	-7	AG	850	5.3	.0	29.3
E. NB Apr	7	-13	7	-150	AG	1490	5.3	.0	36.6
F. SB Dep	-9	-13	-9	-150	AG	570	5.3	.0	36.6
G. EB Apr	-18	-4	-150	-4	AG	740	5.3	.0	29.3
H. WB Dep	-18	9	-150	9	AG	560	5.3	.0	29.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	21	16	1.8
2. Recpt 2	21	-16	1.8
3. Recpt 3	-20	-16	1.8
4. Recpt 4	-21	16	1.8
5. Recpt 5	25	20	1.8
6. Recpt 6	25	-20	1.8
7. Recpt 7	-24	-20	1.8
8. Recpt 8	-25	20	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	347.	1.5	.3	1.2	.0	.0	.0	.0	.0	.0
2. Recpt 2	354.	1.4	.2	.9	.2	.2	.0	.0	.0	.0
3. Recpt 3	15.	1.1	.4	.7	.0	.0	.0	.0	.0	.0
4. Recpt 4	20.	1.2	.5	.6	.0	.0	.0	.0	.0	.0
5. Recpt 5	345.	1.4	.3	1.2	.0	.0	.0	.0	.0	.0
6. Recpt 6	350.	1.5	.2	.8	.2	.2	.0	.0	.0	.0
7. Recpt 7	14.	1.1	.4	.5	.0	.0	.0	.0	.1	.0

C48974~1

8. Recpt 8	*	97.	*	1.3	*	.3	.4	.4	.1	.0	.0	.0	.0

C4088A~1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 15 - baseline+ph1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-7	13	-7	150	AG	2050	5.3	.0	36.6
B. NB Dep	11	13	11	150	AG	3730	5.3	.0	36.6
C. WB Apr	18	6	150	6	AG	1930	5.3	.0	29.3
D. EB Dep	18	-7	150	-7	AG	1360	5.3	.0	29.3
E. NB Apr	7	-13	7	-150	AG	1500	5.3	.0	36.6
F. SB Dep	-9	-13	-9	-150	AG	570	5.3	.0	36.6
G. EB Apr	-18	-4	-150	-4	AG	750	5.3	.0	29.3
H. WB Dep	-18	9	-150	9	AG	570	5.3	.0	29.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	21	16	1.8
2. Recpt 2	21	-16	1.8
3. Recpt 3	-20	-16	1.8
4. Recpt 4	-21	16	1.8
5. Recpt 5	25	20	1.8
6. Recpt 6	25	-20	1.8
7. Recpt 7	-24	-20	1.8
8. Recpt 8	-25	20	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	343.	1.8	.5	1.3	.0	.0	.0	.0	.0	.0
2. Recpt 2	354.	1.8	.2	1.0	.3	.3	.0	.0	.0	.0
3. Recpt 3	15.	1.3	.5	.8	.0	.0	.0	.0	.0	.0
4. Recpt 4	20.	1.5	.7	.8	.0	.0	.0	.0	.0	.0
5. Recpt 5	344.	1.7	.3	1.4	.0	.0	.0	.0	.0	.0
6. Recpt 6	350.	1.9	.3	1.0	.3	.3	.0	.0	.0	.0
7. Recpt 7	14.	1.3	.5	.6	.0	.0	.0	.0	.1	.0

8. Recpt 8	*	97.	*	1.7	*	.4	.4	.6	.2	.0	.0	.0	.0

C489F3~1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 19 - baseline
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-7	13	-7	150	AG	1800	5.3	.0	36.6
B. NB Dep	11	13	11	150	AG	2730	5.3	.0	36.6
C. WB Apr	18	4	150	4	AG	960	5.3	.0	29.3
D. EB Dep	18	-9	150	-9	AG	890	5.3	.0	29.3
E. NB Apr	7	-13	7	-150	AG	2230	5.3	.0	36.6
F. SB Dep	-9	-13	-9	-150	AG	1680	5.3	.0	36.6
G. EB Apr	-18	-4	-150	-4	AG	940	5.3	.0	29.3
H. WB Dep	-18	9	-150	9	AG	630	5.0	.0	29.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	21	16	1.8
2. Recpt 2	21	-16	1.8
3. Recpt 3	-20	-16	1.8
4. Recpt 4	-21	16	1.8
5. Recpt 5	25	20	1.8
6. Recpt 6	25	-20	1.8
7. Recpt 7	-24	-20	1.8
8. Recpt 8	-25	20	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	343.	1.4	.4	1.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	352.	1.3	.3	.8	.1	.1	.0	.0	.0	.0
3. Recpt 3	163.	1.2	.0	.0	.0	.0	.6	.6	.0	.0
4. Recpt 4	20.	1.2	.6	.6	.0	.0	.0	.0	.0	.0
5. Recpt 5	344.	1.3	.3	1.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	349.	1.4	.3	.7	.2	.2	.0	.0	.0	.0
7. Recpt 7	83.	1.2	.0	.0	.2	.3	.3	.3	.0	.0
8. Recpt 8	167.	1.2	.0	.0	.0	.0	.4	.4	.1	.1

C40886~1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 19 - baseline+ph1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-7	13	-7	150	AG	2310	5.3	.0	36.6
B. NB Dep	11	13	11	150	AG	3610	5.3	.0	36.6
C. WB Apr	18	4	150	4	AG	1000	5.3	.0	29.3
D. EB Dep	18	-9	150	-9	AG	910	5.3	.0	29.3
E. NB Apr	7	-13	7	-150	AG	3230	5.3	.0	36.6
F. SB Dep	-9	-13	-9	-150	AG	2300	5.3	.0	36.6
G. EB Apr	-18	-4	-150	-4	AG	1010	5.3	.0	29.3
H. WB Dep	-18	9	-150	9	AG	730	5.3	.0	29.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	21	16	1.8
2. Recpt 2	21	-16	1.8
3. Recpt 3	-20	-16	1.8
4. Recpt 4	-21	16	1.8
5. Recpt 5	25	20	1.8
6. Recpt 6	25	-20	1.8
7. Recpt 7	-24	-20	1.8
8. Recpt 8	-25	20	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	343.	1.8	.5	1.2	.0	.0	.0	.0	.0	.0
2. Recpt 2	196.	1.7	.0	.0	.0	.0	1.2	.5	.0	.0
3. Recpt 3	163.	1.6	.0	.0	.0	.0	.8	.8	.0	.0
4. Recpt 4	20.	1.6	.8	.7	.0	.0	.0	.0	.0	.0
5. Recpt 5	344.	1.7	.4	1.3	.0	.0	.0	.0	.0	.0
6. Recpt 6	349.	1.7	.4	.9	.2	.2	.1	.0	.0	.0

7. Recpt 7	*	160.	*	1.5	*	.0	.0	.0	.0	.7	.8	.0	.0
8. Recpt 8	*	167.	*	1.5	*	.0	.0	.0	.0	.6	.6	.1	.2

C4A954~1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 22 - baseline
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-6	7	-6	150	AG	2370	5.3	.0	32.9
B. NB Dep	9	7	9	150	AG	2880	5.3	.0	32.9
C. WB Apr	15	4	150	4	AG	160	5.3	.0	18.3
D. EB Dep	15	-4	150	-4	AG	60	3.5	.0	18.3
E. NB Apr	6	-7	6	-150	AG	2760	5.3	.0	32.9
F. SB Dep	-9	-7	-9	-150	AG	2430	5.3	.0	32.9
G. EB Apr	-15	-4	-150	-4	AG	380	5.3	.0	18.3
H. WB Dep	-15	4	-150	4	AG	300	4.1	.0	18.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	18	10	1.8
2. Recpt 2	18	-10	1.8
3. Recpt 3	-18	-10	1.8
4. Recpt 4	-18	10	1.8
5. Recpt 5	22	14	1.8
6. Recpt 6	22	-14	1.8
7. Recpt 7	-22	-14	1.8
8. Recpt 8	-22	14	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	348.	1.9	.6	1.2	.0	.0	.0	.0	.0	.0
2. Recpt 2	350.	1.7	.6	1.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	166.	1.8	.0	.0	.0	.0	.8	1.0	.0	.0
4. Recpt 4	170.	1.7	.0	.0	.0	.0	.7	.8	.0	.0
5. Recpt 5	345.	1.7	.5	1.2	.0	.0	.0	.0	.0	.0
6. Recpt 6	349.	1.6	.5	.9	.0	.0	.1	.0	.0	.0
7. Recpt 7	164.	1.6	.0	.0	.0	.0	.7	1.0	.0	.0

8. Recpt 8	*	168. *	1.6 *	.0	.0	.0	.0	.6	.8	.0	.0

C40989~1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 22 - baseline+ph1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-6	7	-6	150	AG	2740	5.3	.0	32.9
B. NB Dep	9	7	9	150	AG	3420	5.3	.0	32.9
C. WB Apr	15	4	150	4	AG	160	5.3	.0	18.3
D. EB Dep	15	-4	150	-4	AG	60	3.5	.0	18.3
E. NB Apr	6	-7	6	-150	AG	3310	5.3	.0	32.9
F. SB Dep	-9	-7	-9	-150	AG	2800	5.3	.0	32.9
G. EB Apr	-15	-4	-150	-4	AG	380	5.3	.0	18.3
H. WB Dep	-15	4	-150	4	AG	310	4.1	.0	18.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	18	10	1.8
2. Recpt 2	18	-10	1.8
3. Recpt 3	-18	-10	1.8
4. Recpt 4	-18	10	1.8
5. Recpt 5	22	14	1.8
6. Recpt 6	22	-14	1.8
7. Recpt 7	-22	-14	1.8
8. Recpt 8	-22	14	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	348.	2.2	.7	1.4	.0	.0	.0	.0	.0	.0
2. Recpt 2	195.	2.0	.0	.0	.0	.0	1.4	.7	.0	.0
3. Recpt 3	166.	2.1	.0	.0	.0	.0	1.0	1.1	.0	.0
4. Recpt 4	169.	2.0	.0	.0	.0	.0	.9	.9	.0	.0
5. Recpt 5	346.	2.0	.6	1.4	.0	.0	.0	.0	.0	.0
6. Recpt 6	349.	1.9	.6	1.1	.0	.0	.1	.0	.0	.0
7. Recpt 7	164.	1.9	.0	.0	.0	.0	.8	1.1	.0	.0

C40989~1

8. Recpt 8	*	167.	*	1.9	*	.1	.0	.0	.0	.8	.8	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 24 - baseline
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-7	6	-7	150	AG	1240	5.3	.0	25.6
B. NB Dep	9	7	9	150	AG	2940	5.3	.0	25.6
C. EB Dep	11	0	106	106	AG	290	3.0	.0	11.0
D. NB Apr	6	-6	6	-150	AG	1680	5.3	.0	25.6
E. SB Dep	-6	-6	-6	-150	AG	610	5.3	.0	25.6
F. EB Apr	-11	0	-150	0	AG	1690	5.3	.0	14.6

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	15	-11	1.8
2. Recpt 2	-14	-9	1.8
3. Recpt 3	19	-15	1.8
4. Recpt 4	-18	-13	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F
1. Recpt 1	353.	1.6	.3	1.2	.0	.0	.0	.0
2. Recpt 2	11.	1.8	.5	.8	.0	.0	.0	.5
3. Recpt 3	352.	1.5	.2	1.2	.0	.0	.0	.0
4. Recpt 4	14.	1.6	.4	.7	.0	.0	.0	.4

C40987~1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 24 - baseline+ph1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-7	6	-7	150	AG	1240	5.3	.0	25.6
B. NB Dep	9	7	9	150	AG	3310	5.3	.0	25.6
C. EB Dep	11	0	106	106	AG	290	3.0	.0	11.0
D. NB Apr	6	-6	6	-150	AG	1870	5.3	.0	25.6
E. SB Dep	-6	-6	-6	-150	AG	630	5.3	.0	25.6
F. EB Apr	-11	0	-150	0	AG	1890	5.3	.0	14.6

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	15	-11	1.8
2. Recpt 2	-14	-9	1.8
3. Recpt 3	19	-15	1.8
4. Recpt 4	-18	-13	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F
1. Recpt 1	354.	1.8	.2	1.4	.0	.0	.0	.0
2. Recpt 2	11.	1.9	.5	.8	.0	.0	.0	.6
3. Recpt 3	352.	1.7	.2	1.3	.0	.0	.0	.0
4. Recpt 4	14.	1.8	.4	.8	.0	.0	.0	.5

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 25 - baseline
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-6	6	-6	150	AG	1990	5.3	.0	29.3
B. NB Dep	7	6	7	150	AG	3040	5.3	.0	29.3
C. WB Apr	13	0	150	0	AG	810	5.3	.0	14.6
D. NB Apr	6	-6	6	-150	AG	2940	5.3	.0	29.3
E. SB Dep	-7	-6	-7	-150	AG	2620	5.3	.0	29.3
F. EB Apr	-13	-2	-150	-2	AG	650	5.3	.0	11.0
G. WB Dep	-13	2	-150	2	AG	510	5.3	.0	11.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	16	9	1.8
2. Recpt 2	-16	-7	1.8
3. Recpt 3	-16	7	1.8
4. Recpt 4	20	13	1.8
5. Recpt 5	-20	-11	1.8
6. Recpt 6	-20	11	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G
1. Recpt 1	190.	2.2	.0	.0	.2	1.2	.7	.0	.0
2. Recpt 2	168.	2.1	.0	.0	.0	.9	1.2	.0	.0
3. Recpt 3	170.	2.3	.0	.0	.0	.8	1.1	.2	.2
4. Recpt 4	192.	2.0	.0	.2	.2	1.1	.6	.0	.0
5. Recpt 5	166.	1.9	.0	.0	.0	.7	1.2	.0	.0
6. Recpt 6	168.	2.1	.0	.0	.0	.7	1.0	.2	.2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: intersection 25 - baseline+ph1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	50. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	5. DEGREES	TEMP=	7.2 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. SB Apr	-6	6	-6	150	AG	2040	5.3	.0	29.3
B. NB Dep	7	6	7	150	AG	3400	5.3	.0	29.3
C. WB Apr	13	0	150	0	AG	820	5.3	.0	14.6
D. NB Apr	6	-6	6	-150	AG	3310	5.3	.0	29.3
E. SB Dep	-7	-6	-7	-150	AG	2680	5.3	.0	29.3
F. EB Apr	-13	-2	-150	-2	AG	660	5.3	.0	11.0
G. WB Dep	-13	2	-150	2	AG	530	5.3	.0	11.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	16	9	1.8
2. Recpt 2	-16	-7	1.8
3. Recpt 3	-16	7	1.8
4. Recpt 4	20	13	1.8
5. Recpt 5	-20	-11	1.8
6. Recpt 6	-20	11	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G
1. Recpt 1	190.	2.3	.0	.0	.3	1.3	.7	.0	.0
2. Recpt 2	168.	2.2	.0	.0	.0	1.0	1.3	.0	.0
3. Recpt 3	169.	2.4	.0	.0	.0	1.0	1.0	.2	.2
4. Recpt 4	192.	2.2	.0	.2	.2	1.2	.6	.0	.0
5. Recpt 5	165.	2.0	.0	.0	.0	.8	1.2	.0	.0
6. Recpt 6	168.	2.2	.0	.0	.0	.8	1.0	.2	.2