Appendix 8.4
Air Quality Tables

Table: Route 238 Model Land Use Alternatives

Derived from CD+A Land Use Maps & based on City TAZ allocations

Compiled by Dowling Associates, Inc.

ABAG P2007

	Alternative					Alternative					Alternative					Alternative				
	EXISTING GENERAL PLAN - NO-PROJECT					A - Market Potential					B - Community Meeting					C - Public Agencies				
Model TAZ	Households	Employed Residents	Household Population	Commercial SQ Feet	Employment	Households	Employed Residents	Household Population	Commercial SQ Feet	Employment	Households	Employed Residents	Household Population	Commercial SQ Feet	Employment	Households	Employed Residents	Household Population	Commercial SQ Feet	Employment
623	299	479	928	54762	137	180	289	559	29413	74	109	174	337	31251	78	240	384	745	38224	96
624	157	251	485	21194	53	42	68	131	57223	143	50	80	155	4683	12	201	321	623	29758	74
637	3	5	11	0	0	2	4	7	0	0	2	4	7	0	0	3	5	11	0	0
650	0	0	0	6207	16	0	0	0	6207	16	0	0	0	6207	16	0	0	0	6207	16
655	58	93	179	0	0	68	109	211	11805	30	20	33	63	0	0	40	64	125	0	0
666	39	63	122	8802	22	23	37	72	7380	18	17	27	53	3870	10	38	61	117	15290	38
669	22	36	69	0	0	26	42	81	0	0	8	13	24	0	0	15	25	48	0	0
697	136	217	421	72848	182	308	493	956	46827	117	23	37	71	42798	107	259	414	802	42482	106
698	304	487	943	0	0	942	1507	2354	11395	28	225	360	562	0	0	0	0	0	0	0
699	70	112	217	0	0	112	179	348	0	0	68	108	210	0	0	132	211	409	0	0
700	142	227	440	0	0	163	262	507	0	0	101	161	312	0	0	254	406	787	0	0
701	58	93	181	0	0	91	145	281	0	0	69	110	213	0	0	130	207	402	0	0
702	100	160	311	0	0	118	188	365	0	0	35	57	109	0	0	70	112	216	0	0
703	51	81	158	0	0	60	96	185	0	0	18	29	56	0	0	35	57	110	0	0
705	567	907	1757	0	0	258	412	799	0	0	156	250	484	0	0	189	303	586	0	0
708	59	95	184	21494	54	47	76	146	25287	63	32	51	99	55573	139	48	77	148	21494	54
709	427	683	1323	3793	9	600	960	1861	1980	5	145	233	451	9807	25	375	600	1162	3793	9
711	179	287	556	68607	172	179	286	554	37355	93	88	140	272	65732	164	133	212	412	83112	208
Sum	**2673**	**4276**	**8285**	**257707**	**644**	**3220**	**5152**	**9418**	**234872**	**587**	**1165**	**1865**	**3478**	**219920**	**550**	**2163**	**3460**	**6704**	**240360**	**601**

Project: SR 238 Alt C

Spreadsheet to CalculateElectrical Power Emissions and Other Greenhouse Gases for Bay Area Projects

URBEMIS ANNUAL CO2 EMISSIONS FROM:

			CH4 ANNUAL EMISSIONS		N20 ANNUAL EMISSIONS	
VEHICLES:	41656.22	TONS/YEAR	29.26	CO2 EQUIV.TONS/YEAR	131.72	CO2 EQUIV.TONS/YEAR
AREA SOURCES	6635.61	TONS/YEAR	1.90	CO2 EQUIV.TONS/YEAR	27.98	CO2 EQUIV.TONS/YEAR
ELECTRICITY	8,865	TONS/YEAR	1.85	CO2 EQUIV.TONS/YEAR	12.64	CO2 EQUIV.TONS/YEAR
			33.00	CO2 EQUIV.TONS/YEAR	172.33	CO2 EQUIV.TONS/YEAR

TOTAL:	Tons/year	Metric Tons per year
Vehicles	41817.20	37936.32
Area Sources	6665.48	6046.88
Electricity	8879.00	8054.98

57361.68 CO2 EQUIV.TONS/YEAR

52038.18 CO2 EQUIV.TONNES/YEAR

CH4 and N2O emission factors from Table 3 in BAAQMD's "Source Inventory of Bay Area Greenhouse Gas Emissions", November 2006.

CH4 assumed to have a Global Warming Potential of 25 times that of CO2.

N2O assumed to have a Global Warming Potential of 310 times that of CO2.

Electrical Power Usage

Amounts	Units/1000 sq. ft.	Usage/Unit	Usage mW-hr/year
2162	Residences	6.92	14961.04
	Office	12.84	0
	Restaurant	35.62	0
	Retail	13.84	0
120	Grocery	46.96	5635.2
	Ref. Warehouse	22.36	0
	Warehouse	6.04	0
	Schools	6.82	0
	Colleges	10.44	0
	Hospitals	21.2	0
	Lodging	10.87	0
120	Misc. cmrcl.	12	1440

	lbs./MWh (from CCAR Protocol)		TONS/YEAR
22036.24	804.54	CO_2	8,865
	0.0067	CH_4	0.0738
	0.0037	NO_2	0.0408

Residential Rate from California Electricity Consumption by County, 2005 (http://www.energy.ca.gov/electricity/electricity_by_county_2005.html)

Commercial Electricity Use, PG&E systemwide; kWH per conditioned sq. ft./yr; from CEC: http://www.consumerenergycenter.org/pv4newbuildings/downloads/II-6A.pdf

[4] Calif. Climate Action Registry (CCAR) Protocol ver 2.2

Project: SR 238 Alt. B
Spreadsheet to CalculateElectrical Power Emissions and Other Greenhouse Gases for Bay Area Projects

URBEMIS ANNUAL CO2 EMISSIONS FROM:

			CH4 ANNUAL EMISSIONS		N20 ANNUAL EMISSIONS	
VEHICLES:	28467.57	TONS/YEAR	20.00	CO2 EQUIV.TONS/YEAR	90.01	CO2 EQUIV.TONS/YEAR
AREA SOURCES	3741.01	TONS/YEAR	1.07	CO2 EQUIV.TONS/YEAR	15.77	CO2 EQUIV.TONS/YEAR
ELECTRICITY	5,855	TONS/YEAR	1.22	CO2 EQUIV.TONS/YEAR	8.35	CO2 EQUIV.TONS/YEAR
			22.29	CO2 EQUIV.TONS/YEAR	114.13	CO2 EQUIV.TONS/YEAR

TOTAL:	Tons/year	Metric Tons per year
Vehicles	28577.58	25925.41
Area Sources	3757.85	3409.10
Electricity	5864.33	5320.09

38199.77 CO2 EQUIV.TONS/YEAR
34654.60 CO2 EQUIV.TONNES/YEAR

CH4 and N2O emission factors from Table 3 in BAAQMD's "Source Inventory of Bay Area Greenhouse Gas Emissions", November 2006.
CH4 assumed to have a Global Warming Potential of 25 times that of CO2.
N2O assumed to have a Global Warming Potential of 310 times that of CO2.

Electrical Power Usage

Amounts	Units/1000 sq. ft.	Usage/Unit	Usage mW-hr/year
1166	Residences	6.92	8068.72
	Office	12.84	0
	Restaurant	35.62	0
	Retail	13.84	0
110	Grocery	46.96	5165.6
	Ref. Warehouse	22.36	0
	Warehouse	6.04	0
	Schools	6.82	0
	Colleges	10.44	0
	Hospitals	21.2	0
	Lodging	10.87	0
110	Misc. cmrcl.	12	1320
			14554.32

lbs./MWh (from CCAR Protocol)		TONS/YEAR
804.54	CO_2	5,855
0.0067	CH_4	0.0488
0.0037	NO_2	0.0269

Residential Rate from California Electricity Consumption by County, 2005 (http://www.energy.ca.gov/electricity/electricity_by_county_2005.html)
Commercial Electricity Use, PG&E systemwide; kWH per conditioned sq. ft./yr; from CEC: http://www.consumerenergycenter.org/pv4newbuildings/downloads/II-6A.pdf
[4] Calif. Climate Action Registry (CCAR) Protocol ver 2.2

Project: SR 238 Alt. A
Spreadsheet to CalculateElectrical Power Emissions and Other Greenhouse Gases for Bay Area Projects

URBEMIS ANNUAL CO2 EMISSIONS FROM:

			CH4 ANNUAL EMISSIONS		N20 ANNUAL EMISSIONS	
VEHICLES:	53864.77	TONS/YEAR	37.84	CO2 EQUIV.TONS/YEAR	170.32	CO2 EQUIV.TONS/YEAR
AREA SOURCES	9661.65	TONS/YEAR	2.76	CO2 EQUIV.TONS/YEAR	40.73	CO2 EQUIV.TONS/YEAR
ELECTRICITY	11,739	TONS/YEAR	2.44	CO2 EQUIV.TONS/YEAR	16.74	CO2 EQUIV.TONS/YEAR
			43.04	CO2 EQUIV.TONS/YEAR	227.79	CO2 EQUIV.TONS/YEAR

TOTAL:	Tons/year	Metric Tons per year
Vehicles	54072.93	49054.64
Area Sources	9705.14	8804.45
Electricity	11757.71	10666.52

75535.78 CO2 EQUIV.TONS/YEAR
68525.61 CO2 EQUIV.TONNES/YEAR

CH4 and N2O emission factors from Table 3 in BAAQMD's "Source Inventory of Bay Area Greenhouse Gas Emissions", November 2006.
CH4 assumed to have a Global Warming Potential of 25 times that of CO2.
N2O assumed to have a Global Warming Potential of 310 times that of CO2.

Electrical Power Usage

Amounts	Units/1000 sq. ft.	Usage/Unit	Usage mW-hr/year
3220	Residences	6.92	22282.4
	Office	12.84	0
	Restaurant	35.62	0
	Retail	13.84	0
117	Grocery	46.96	5494.32
	Ref. Warehouse	22.36	0
	Warehouse	6.04	0
	Schools	6.82	0
	Colleges	10.44	0
	Hospitals	21.2	0
	Lodging	10.87	0
117	Misc. cmrcl.	12	1404
			29180.72

	lbs./MWh (from CCAR Protocol)	TONS/YEAR
CO_2	804.54	11,739
CH_4	0.0067	0.0978
NO_2	0.0037	0.0540

Residential Rate from California Electricity Consumption by County, 2005 (http://www.energy.ca.gov/electricity/electricity_by_county_2005.html)
Commercial Electricity Use, PG&E systemwide; kWH per conditioned sq. ft./yr; from CEC: http://www.consumerenergycenter.org/pv4newbuildings/downloads/II-6A.pdf
[4] Calif. Climate Action Registry (CCAR) Protocol ver 2.2

Project: SR 238 No Project
Spreadsheet to CalculateElectrical Power Emissions and Other Greenhouse Gases for Bay Area Projects

URBEMIS ANNUAL CO2 EMISSIONS FROM:

			CH4 ANNUAL EMISSIONS		N20 ANNUAL EMISSIONS	
VEHICLES:	48926.57	TONS/YEAR	34.37	CO2 EQUIV.TONS/YEAR	154.71	CO2 EQUIV.TONS/YEAR
AREA SOURCES	8131.66	TONS/YEAR	2.32	CO2 EQUIV.TONS/YEAR	34.28	CO2 EQUIV.TONS/YEAR
ELECTRICITY	10,498	TONS/YEAR	2.19	CO2 EQUIV.TONS/YEAR	14.97	CO2 EQUIV.TONS/YEAR
			38.88	CO2 EQUIV.TONS/YEAR	203.95	CO2 EQUIV.TONS/YEAR

TOTAL:	Tons/year	Metric Tons per year
Vehicles	49115.65	44557.42
Area Sources	8168.27	7410.20
Electricity	10514.82	9538.98

67798.73 CO2 EQUIV.TONS/YEAR
61506.61 CO2 EQUIV.TONNES/YEAR

CH4 and N2O emission factors from Table 3 in BAAQMD's "Source Inventory of Bay Area Greenhouse Gas Emissions", November 2006.
CH4 assumed to have a Global Warming Potential of 25 times that of CO2.
N2O assumed to have a Global Warming Potential of 310 times that of CO2.

Electrical Power Usage

Amounts Units/1000 sq. ft.		Usage/Unit	Usage mW-hr/year
2672	Residences	6.92	18490.24
	Office	12.84	0
	Restaurant	35.62	0
	Retail	13.84	0
129	Grocery	46.96	6057.84
	Ref. Warehouse	22.36	0
	Warehouse	6.04	0
	Schools	6.82	0
	Colleges	10.44	0
	Hospitals	21.2	0
	Lodging	10.87	0
129	Misc. cmrcl.	12	1548
			26096.08

	lbs./MWh (from CCAR Protocol)	TONS/YEAR
CO_2	804.54	10,498
CH_4	0.0067	0.0874
NO_2	0.0037	0.0483

Residential Rate from California Electricity Consumption by County, 2005 (http://www.energy.ca.gov/electricity/electricity_by_county_2005.html)
Commercial Electricity Use, PG&E systemwide; kWH per conditioned sq. ft./yr; from CEC: http://www.consumerenergycenter.org/pv4newbuildings/downloads/II-6A.pdf
[4] Calif. Climate Action Registry (CCAR) Protocol ver 2.2

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\Don Ballanti\Application Data\Urbemis\Version9a\Projects\sr238Alt B.urb924

Project Name: SR 238 Alternative C

Project Location: Alameda County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	6,635.61

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	41,658.22

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	48,293.83

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	CO2
Natural Gas	5,484.33
Hearth	1,143.55
Landscape	7.73
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	6,635.61

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	CO2
Single family housing	15,131.18
Apartments low rise	10,625.03
Supermarket	15,352.21
General office building	549.80
TOTALS (tons/year, unmitigated)	41,658.22

Operational Settings:

Does not include correction for passby trips

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Does not include double counting adjustment for internal trips

Analysis Year: 2025 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	360.33	9.57	dwelling units	1,081.00	10,345.17	88,448.10
Apartments low rise	67.56	6.72	dwelling units	1,081.00	7,264.32	62,107.76
Supermarket		102.24	1000 sq ft	120.00	12,268.80	90,703.24
General office building		3.32	1000 sq ft	120.00	398.40	3,228.04
					30,276.69	244,487.14

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.6	0.0	100.0	0.0
Light Truck < 3750 lbs	12.2	0.0	99.2	0.8
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	34.5	65.5	0.0

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Vehicle Fleet Mix

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

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Supermarket				2.0	1.0	97.0
General office building				35.0	17.5	47.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\Don Ballanti\Application Data\Urbemis\Version9a\Projects\sr238Alt A.urb924

Project Name: SR 238 Alternative B

Project Location: Alameda County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	3,741.01

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	28,467.57

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	32,208.58

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	CO2
Natural Gas	3,119.76
Hearth	616.73
Landscape	4.52
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	3,741.01

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	CO2
Single family housing	8,160.48
Apartments low rise	5,730.24
Supermarket	14,072.86
General office building	503.99
TOTALS (tons/year, unmitigated)	28,467.57

Operational Settings:

Does not include correction for passby trips

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Does not include double counting adjustment for internal trips

Analysis Year: 2025 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	194.33	9.57	dwelling units	583.00	5,579.31	47,701.43
Apartments low rise	36.44	6.72	dwelling units	583.00	3,917.76	33,495.67
Supermarket		102.24	1000 sq ft	110.00	11,246.40	83,144.63
General office building		3.32	1000 sq ft	110.00	365.20	2,959.03
					21,108.67	167,300.76

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.6	0.0	100.0	0.0
Light Truck < 3750 lbs	12.2	0.0	99.2	0.8
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	34.5	65.5	0.0

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Vehicle Fleet Mix

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

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Supermarket				2.0	1.0	97.0
General office building				35.0	17.5	47.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\Don Ballanti\Application Data\Urbemis\Version9a\Projects\sr238 no project.urb924

Project Name: SR 238 Alternative A

Project Location: Alameda County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	9,661.65

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	53,864.77

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	63,526.42

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	CO2
Natural Gas	7,947.36
Hearth	1,703.15
Landscape	11.14
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	9,661.65

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	CO2
Single family housing	22,535.79
Apartments low rise	15,824.51
Supermarket	14,968.41
General office building	536.06
TOTALS (tons/year, unmitigated)	53,864.77

Operational Settings:

Does not include correction for passby trips

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Does not include double counting adjustment for internal trips

Analysis Year: 2025 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	536.67	9.57	dwelling units	1,610.00	15,407.70	131,731.21
Apartments low rise	100.62	6.72	dwelling units	1,610.00	10,819.20	92,500.91
Supermarket		102.24	1000 sq ft	117.00	11,962.08	88,435.65
General office building		3.32	1000 sq ft	117.00	388.44	3,147.34
					38,577.42	315,815.11

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.6	0.0	100.0	0.0
Light Truck < 3750 lbs	12.2	0.0	99.2	0.8
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	34.5	65.5	0.0

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Vehicle Fleet Mix

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

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Supermarket				2.0	1.0	97.0
General office building				35.0	17.5	47.5

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name:

Project Name: SR 238 No Project

Project Location: Alameda County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	8,131.66

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	48,926.57

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	57,058.23

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	CO2
Natural Gas	6,708.98
Hearth	1,413.30
Landscape	9.38
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	8,131.66

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	CO2
Single family housing	18,700.51
Apartments low rise	13,131.39
Supermarket	16,503.63
General office building	591.04
TOTALS (tons/year, unmitigated)	48,926.57

Operational Settings:

Does not include correction for passby trips

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Does not include double counting adjustment for internal trips

Analysis Year: 2025 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	445.33	9.57	dwelling units	1,336.00	12,785.52	109,312.36
Apartments low rise	83.50	6.72	dwelling units	1,336.00	8,977.92	76,758.52
Supermarket		102.24	1000 sq ft	129.00	13,188.96	97,505.98
General office building		3.32	1000 sq ft	129.00	428.28	3,470.14
					35,380.68	287,047.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.6	0.0	100.0	0.0
Light Truck < 3750 lbs	12.2	0.0	99.2	0.8
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	34.5	65.5	0.0

Vehicle Fleet Mix

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

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
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% of Trips - Commercial (by land use)						
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