

**SUMMARY OF PROJECT GREENHOUSE GAS EMISSIONS USING THE BAAQMD BGM MODEL**

<b>DATA/PROJECT ASSUMPTIONS</b>			
	<b>Baseline Conditions</b>	<b>Project Conditions</b>	
<b>Land Use</b>	Undeveloped, unoccupied	90 single-family dwelling units	
<b>Average Daily Trips</b>	0	891	
<b>Length of Construction</b>	n/a	2-3 years	
<b>Percent Exceedance of Title 24</b>	n/a	15	
<b>Mitigation Measures Proposed to Reduce GHG Emissions</b>	n/a	Electricity - installation of cool roofs Natural Gas - installation of cool roofs, tankless water heater Solid waste - 61% waste diversion	
<b>RESULTS</b>	<b>Unmitigated Project-Baseline CO2e (metric tons/year)</b>	<b>Mitigated Project-Baseline CO2e (metric tons/year)</b>	<b>Mitigation</b>
Transportation	910.92	910.92	
Area Source	4.05	4.05	
Electricity*	154.675	134.5	Installation of cool roofs, 15% exceedance of Title 24
Natural Gas	237.04	-24.1	Installation of cool roofs and tankless water heaters, 15% exceedance of Title 24
Water & Wastewater	17.59	17.59	
Solid Waste	61.21	23.87	61% waste diversion
Agriculture	0	0	
Off-Road Equipment	0	0	
Refrigerants	0	0	
Sequestration	n/a	0	
Purchase of Offsets	n/a	0	

Note: \* Electricity emissions were calculated using PG&E's specific emission factor rather than the BGM Model's default emission factor.

**DETAILED RESULTS OF PROJECT  
GREENHOUSE GAS EMISSIONS USING THE  
BAAQMD BGM MODEL**

**BASELINE CONDITIONS**

	CO2	CH4	N2O	CO2e	% of Total
	(metric tons per year)				
Transportation*				0.00	0.00
Area Source	0.00	0.00	0.00	0.00	0.00
Electricity^	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00
Water & Wastewater	0.00	0.00	0.00	0.00	0.00
Solid Waste	0.00	0.00	n/a	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00
Off-Road Equipment	0.00	0.00	0.00	0.00	0.00
Refrigerants	n/a	n/a	n/a	0.00	0.00
Sequestration	n/a	n/a	n/a	n/a	n/a
Purchase of Offsets	n/a	n/a	n/a	n/a	n/a
<b>Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**PROJECT UNMITIGATED RESULTS**

	CO2	CH4	N2O	CO2e	% of Total
	(metric tons per year)				
Transportation*				910.92	66.72
Area Source	0.53	0.16	0.00	4.05	0.30
Electricity^	154.68	0.00	0.00	134.50	9.85
Natural Gas	236.43	0.00	0.00	237.04	17.36
Water & Wastewater	17.56	0.00	0.00	17.59	1.29
Solid Waste	0.95	2.87	n/a	61.21	4.48
Agriculture	0.00	0.00	0.00	0.00	0.00
Off-Road Equipment	0.00	0.00	0.00	0.00	0.00
Refrigerants	n/a	n/a	n/a	0.00	0.00
Sequestration	n/a	n/a	n/a	n/a	n/a
Purchase of Offsets	n/a	n/a	n/a	n/a	n/a
<b>Total:</b>	<b>410.15</b>	<b>3.03</b>	<b>0.00</b>	<b>1365.31</b>	<b>100.00</b>

**PROJECT MITIGATED RESULTS**

	CO2	CH4	N2O	CO2e	% of Total
	(metric tons per year)				
Transportation*	0.00	0.00	0.00	910.92	85.39
Area Source	0.53	0.16	0.00	4.05	0.38
Electricity^	154.68	0.00	0.00	134.50	12.61
Natural Gas	-24.04	0.00	0.00	-24.10	-2.26
Water & Wastewater	17.56	0.00	0.00	17.59	1.65
Solid Waste	0.37	1.12	n/a	23.87	2.24
Agriculture	0.00	0.00	0.00	0.00	0.00
Off-Road Equipment	0.00	0.00	0.00	0.00	0.00
Refrigerants	n/a	n/a	n/a	0.00	0.00
Sequestration	n/a	n/a	n/a	n/a	n/a
Purchase of Offsets	n/a	n/a	n/a	n/a	n/a
<b>Total:</b>	<b>149.10</b>	<b>1.28</b>	<b>0.00</b>	<b>1066.83</b>	<b>100.00</b>

Notes:

\* Several adjustments were made to transportation emissions after they have been imported from URBEMIS. After importing from URBEMIS, CO2 emissions are converted to metric tons and then adjusted to account for the "Pavley" regulation. Then, CO2 is converted to CO2e by multiplying by 100/95 to account for the contribution of other GHGs [CH4, N2O, and HFCs (from leaking air conditioners)]. Finally, CO2e is adjusted to account for the low carbon fuels rule.

^ Electricity emissions were calculated using PG&E's specific emission factor rather than the BGM Model's default emission factor.

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mlisenbee\Application Data\Urbemis\Version9a\Projects\Lands of Lester (revised).urb924

Project Name: Lands of Lester

Project Location: Santa Clara County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2011 TOTALS (tons/year unmitigated)	2.74	2.69	2.26	0.00	1.92	0.15	2.07	0.40	0.14	0.54	373.21
2012 TOTALS (tons/year unmitigated)	0.48	2.20	3.31	0.00	0.01	0.15	0.16	0.00	0.13	0.14	427.36
2013 TOTALS (tons/year unmitigated)	0.18	0.86	1.31	0.00	0.00	0.05	0.06	0.00	0.05	0.05	178.52

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	1.12	0.21	0.45	0.00	0.00	0.00	263.31
TOTALS (tons/year, mitigated)	1.07	0.17	0.36	0.00	0.00	0.00	223.90
Percent Reduction	4.46	19.05	20.00	NaN	NaN	NaN	14.97

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	1.05	1.24	12.24	0.01	1.79	0.34	967.73

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	2.17	1.45	12.69	0.01	1.79	0.34	1,231.04

Both Area and Operational Mitigation must be turned on to get a combined mitigated total.

Construction Unmitigated Detail Report:



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2012	0.48	2.20	3.31	0.00	0.01	0.15	0.16	0.00	0.13	0.14	427.36
Building 08/22/2011-05/31/2013	0.48	2.20	3.31	0.00	0.01	0.15	0.16	0.00	0.13	0.14	427.36
Building Off Road Diesel	0.41	1.93	1.37	0.00	0.00	0.14	0.14	0.00	0.12	0.12	211.57
Building Vendor Trips	0.01	0.17	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01	43.50
Building Worker Trips	0.06	0.10	1.79	0.00	0.01	0.00	0.01	0.00	0.00	0.01	172.30
2013	0.18	0.86	1.31	0.00	0.00	0.05	0.06	0.00	0.05	0.05	178.52
Building 08/22/2011-05/31/2013	0.18	0.86	1.31	0.00	0.00	0.05	0.06	0.00	0.05	0.05	178.52
Building Off Road Diesel	0.16	0.76	0.56	0.00	0.00	0.05	0.05	0.00	0.05	0.05	88.36
Building Vendor Trips	0.01	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.17
Building Worker Trips	0.02	0.04	0.69	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.00

Phase Assumptions

Phase: Fine Grading 3/1/2011 - 7/6/2011 - Default Fine Site Grading Description

Total Acres Disturbed: 8.32

Maximum Daily Acreage Disturbed: 2.08

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 434.78

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 7/6/2011 - 8/22/2011 - Default Paving Description

Acres to be Paved: 2.08

Off-Road Equipment:

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- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 8/22/2011 - 5/31/2013 - Default Building Construction Description

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 5/31/2011 - 8/31/2011 - Default Architectural Coating Description

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

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

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

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

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.02	0.21	0.09	0.00	0.00	0.00	262.73
Hearth							
Landscape	0.07	0.00	0.36	0.00	0.00	0.00	0.58
Consumer Products	0.80						
Architectural Coatings	0.23						
TOTALS (tons/year, unmitigated)	1.12	0.21	0.45	0.00	0.00	0.00	263.31

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Single family housing	1.05	1.24	12.24	0.01	1.79	0.34	967.73
TOTALS (tons/year, unmitigated)	1.05	1.24	12.24	0.01	1.79	0.34	967.73

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 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	8.32	9.70	dwelling units	90.00	873.00	5,716.58
					873.00	5,716.58

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	55.1	0.9	98.9	0.2
Light Truck < 3750 lbs	11.8	1.7	95.8	2.5
Light Truck 3751-5750 lbs	20.6	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.2	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.7	0.0	71.4	28.6
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	66.7	33.3
Med-Heavy Truck 14,001-33,000 lbs	0.8	0.0	25.0	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	2.9	65.5	34.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.7	0.0	85.7	14.3

Travel Conditions

	Residential			Commute	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	10.8	3.0	5.0	9.5	7.4	7.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
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)