

Appendix F: Greenhouse Gas and Emission Modeling

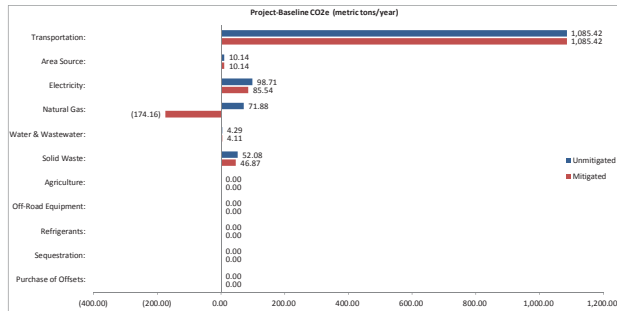
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Summary Results

Project Name: Kimber Park Commons
Project and Baseline Years: 2013 N/A

Results	Unmitigated Project- Baseline CO2e (metric tons/year)	Mitigated Project- Baseline CO2e (metric tons/year)
Transportation:	1,085.42	1,085.42
Area Source:	10.14	10.14
Electricity:	98.71	85.54
Natural Gas:	71.88	(174.16)
Water & Wastewater:	4.29	4.11
Solid Waste:	52.08	46.87
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total	1,322.52	1,057.93

Baseline is currently: OFF
Baseline Project Name:
Go to Settings Tab to Turn On Baseline



Detailed Results

Unmitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				1,085.42	82.07%
Area Source:	9.44	0.03	0.00	10.14	0.77%
Electricity:	98.55	0.00	0.00	98.71	7.46%
Natural Gas:	71.70	0.01	0.00	71.88	5.44%
Water & Wastewater:	4.29	0.00	0.00	4.29	0.32%
Solid Waste:	0.38	2.46	N/A	52.08	3.94%
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
Total				1,322.52	100.00%

Baseline	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				0.00	N/A
Area Source:	0.00	0.00	0.00	0.00	N/A
Electricity:	0.00	0.00	0.00	0.00	N/A
Natural Gas:	0.00	0.00	0.00	0.00	N/A
Water & Wastewater:	0.00	0.00	0.00	0.00	N/A
Solid Waste:	0.00	0.00	N/A	0.00	N/A
Agriculture:	0.00	0.00	0.00	0.00	N/A
Off-Road Equipment:	0.00	0.00	0.00	0.00	N/A
Refrigerants:	N/A	N/A	N/A	0.00	N/A
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total				0.00	0.00%

* Several adjustments were made to transportation emissions after they have been imported from URBEEMIS. After importing from URBEEMIS, 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.

Mitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				1,085.42	102.60%
Area Source:	9.44	0.03	0.00	10.14	0.96%
Electricity:	85.41	0.00	0.00	85.54	8.09%
Natural Gas:	-173.72	-0.02	0.00	-174.16	-16.46%
Water & Wastewater:	4.11	0.00	0.00	4.11	0.39%
Solid Waste:	0.34	2.22	N/A	46.87	4.43%
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	0.00	0.00%
Purchase of Offsets:	N/A	N/A	N/A	0.00	0.00%
Total				1,057.93	100.00%

Mitigation Measures Selected:

Transportation: Go to the following tab: [Transp. Detail Mit.](#) for a list of the transportation mitigation measures selected (in URBEEMIS)

Electricity: The following mitigation measure(s) have been selected to reduce electricity emissions.
Cool Roofs/Green Roofs 5000 kWh/year reduced
Onsite Renewable Energy Systems - Solar 5000 kWh/year generated

Natural Gas: The following mitigation measure(s) have been selected to reduce natural gas emissions.
Cool Roofs/Green Roofs 2
Solar Water Heater 5000 MMBtu/year Reduced

Water and Wastewater: The following mitigation measure(s) have been selected to reduce water and wastewater emissions.
Drought Tolerant Landscaping 10 % Reduction Outdoor Use
Low Flush Toilets 2 % Reduction Indoor Use

Solid Waste: The following mitigation measure has been selected to reduce solid waste related GHG emissions.
Reduce Solid Waste by the Following Percentage 10 Solid Waste Reduction %

Ag: No existing mitigation measures available.

Off-Road Equipment: No existing mitigation measures available.

Refrigerants: The following mitigation measure has been selected to reduce refrigerant emissions:

Carbon Sequestration: Project does not include carbon sequestration through tree planting.

Emission Offsets/Credits: Project does not include purchase of emission offsets/credits.

Transportation

Baseline is Currently: Off

Unmitigated Transportation	Target Year:		Project-Baseline
	2013	2011	
Operational Emissions from URBEEMIS (CO2 tons/year)	Project 1,197.22	Baseline 0.00	
Metric Ton Adjustment (CO2 metric tons/year)	1,086.41	0.00	
Pavley Regulation Adjustment (CO2 metric tons/year)	1,038.63	0.00	
US EPA Adjustment (CO2e metric tons/year)	1,093.30	0.00	
Low Carbon Fuels Rule Adjustment (CO2e metric tons/year)	1,085.42	0.00	
Total (CO2e metric tons/year)			1,085.42

Mitigated Transportation	Target Year:		Project-Baseline
	2013	2011	
Operational Vehicles from URBEEMIS (CO2 tons/year)	Project 1,197.22	Baseline 0.00	
Metric Ton Adjustment (CO2 metric tons/year)	1,086.41	0.00	
Pavley Regulation Adjustment (CO2 metric tons/year)	1,038.63	0.00	
US EPA Adjustment (CO2e metric tons/year)	1,093.30	0.00	
Low Carbon Fuels Adjustment (CO2e metric tons/year)	1,085.42	0.00	
Total (CO2e metric tons/year)			1,085.42

The BGM User's Manual describes in detail each step used to convert URBEEMIS's transportation CO2 emissions to total CO2e. These steps include converting from English to Metric units, adjusting for the Pavley Rule, converting CO2 to CO2e, and adjusting for the Low Carbon Fuels Rule.

Reference

U.S. EPA assumption that GHG emissions from other pollutants - CH4, N2O, and hydrofluorocarbons (HFCs) from leaking air conditioners account for 5 percent of emissions from vehicles, after accounting for global warming potential of each GHG.

Jump to the Following Transportation Related Tabs:
[Transportation Detail for Operational Mitigation](#)
[Last Use Detail](#)

	Don't Need to Adjust this amt. Not Affected by Pavley	Unadjusted Amount Affected by Pavley LDA/LDT1/LDT2/MDV	Adjusted	Adjusted	Adjusted	Adjusted	Adjusted
Pavley Calculations - Project Unmitigated	181.62	904.79	426.86	129.32	203.20	97.63	857.01
Pavley Calculations - Baseline Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pavley Calculations - Project Mitigated	181.62	904.79	426.86	129.32	203.20	97.63	857.01
Pavley Calculations - Baseline Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Pavley Adjustment

Year	% LDA CO2 Emissions	% LDT1 CO2 Emissions	% LDT2 CO2 Emissions	% MOV CO2 Emissions	% LDA/LDT1/LDT2/MDV	% everything else	% CO2 Reduction - LDA	% CO2 Reduction - LDT1	% CO2 Reduction - LDT2	% CO2 Reduction - MDV	12.00	13.00	14.00	15.00	16.00
2009	41.59%	12.33%	19.61%	9.71%	83.26%	16.74%	0.00%	0.00%	0.07%	0.08%	0.0000	0.0000	0.0006	0.0007	0.0013
2010	41.72%	12.39%	19.54%	9.61%	83.26%	16.74%	0.39%	0.29%	0.49%	0.48%	0.0020	0.0022	0.0036	0.0044	0.0122
2011	41.83%	12.45%	19.50%	9.50%	83.27%	16.73%	0.75%	0.34%	0.33%	0.29%	0.0102	0.0117	0.0106	0.0117	0.0452
2012	41.89%	12.50%	19.47%	9.40%	83.27%	16.73%	4.07%	3.27%	2.60%	2.44%	0.0237	0.0286	0.0209	0.0221	0.0953
2013	41.94%	12.56%	19.46%	9.32%	83.28%	16.72%	6.31%	5.26%	3.88%	3.61%	0.0365	0.0460	0.0312	0.0328	0.1465
2014	41.98%	12.62%	19.46%	9.27%	83.33%	16.67%	8.48%	7.26%	5.17%	4.82%	0.0492	0.0634	0.0442	0.0438	0.1980
2015	42.00%	12.67%	19.47%	9.24%	83.38%	16.62%	10.74%	9.38%	6.54%	6.17%	0.0623	0.0819	0.0527	0.0560	0.2523
2016	42.05%	12.76%	19.50%	9.23%	83.54%	16.46%	12.96%	11.56%	7.94%	7.54%	0.0751	0.1008	0.0639	0.0684	0.3082
2017	42.02%	12.81%	19.51%	9.21%	83.55%	16.45%	15.03%	13.58%	9.27%	8.88%	0.0871	0.1184	0.0746	0.0806	0.3608
2018	41.98%	12.84%	19.52%	9.21%	83.55%	16.45%	16.94%	15.43%	10.54%	10.16%	0.0983	0.1345	0.0848	0.0923	0.4093
2019	41.95%	12.87%	19.53%	9.21%	83.57%	16.43%	18.72%	17.13%	11.74%	11.40%	0.1087	0.1492	0.0945	0.1035	0.4550
2020	41.92%	12.89%	19.55%	9.22%	83.59%	16.41%	20.37%	18.69%	12.89%	12.59%	0.1183	0.1628	0.1037	0.1143	0.4992
2025	41.92%	12.86%	19.47%	9.28%	83.62%	16.38%	26.87%	24.86%	17.66%	17.42%	0.1560	0.2164	0.1414	0.1581	0.6710
2030	42.15%	13.03%	19.76%	9.32%	84.26%	15.74%	30.60%	28.71%	20.63%	20.47%	0.1770	0.2497	0.1655	0.1856	0.7779
2035	42.21%	13.11%	19.80%	9.35%	84.47%	15.51%	32.38%	31.17%	22.43%	22.29%	0.1871	0.2708	0.1799	0.2021	0.8400
2040	42.24%	13.14%	19.80%	9.44%	84.72%	15.28%	33.27%	32.61%	23.60%	23.53%	0.1922	0.2832	0.1890	0.2131	0.8775

Low Carbon Fuels Standards

Year	% Reduction Gasoline and Diesel Fuel	% Reduction Tank to Wheels
2010	0.00	0.00
2011	0.25	0.18
2012	0.50	0.35
2013	1.00	0.72
2014	1.50	1.08
2015	2.50	1.80
2016	3.50	2.52
2017	5.00	3.60
2018	6.50	4.68
2019	8.00	5.76
2020	10.00	7.20
2021	10.00	7.20
2022	10.00	7.20
2023	10.00	7.20
2024	10.00	7.20
2025	10.00	7.20
2026	10.00	7.20
2027	10.00	7.20
2028	10.00	7.20
2029	10.00	7.20
2030	10.00	7.20
2031	10.00	7.20
2032	10.00	7.20
2033	10.00	7.20
2034	10.00	7.20
2035	10.00	7.20
2036	10.00	7.20
2037	10.00	7.20
2038	10.00	7.20
2039	10.00	7.20
2040	10.00	7.20

Source:
 Final Regulation Order
 Subchapter 10, Climate Change
 Article 4, Regulations to Achieve Greenhouse Gas Reductions
 Subarticle 7, Low Carbon Fuel Standard
 Section 95482, Average Carbon Intensity Requirements for Gasoline and Diesel

Area Source

Baseline is currently: OFF

Unmitigated Area Source			Project-Baseline
	Project	Baseline	
Landscaping Emissions from URBEMIS (CO2 metric tons/year):	0.789	0.000	
Hearth Emissions from URBEMIS (CO2 metric tons/year):	8.648	0.000	
Wood Burning Fireplaces (N2O metric tons/year):	0.000	0.000	
Natural Gas Fireplaces (N2O metric tons/year):	0.000	0.000	
Wood Burning Stoves (CH4 metric tons/year):	0.031	0.000	
Natural Gas Fireplaces (CH4 metric tons/year):	0.000	0.000	
Total (CO2e metric tons/year):	10.141	0.000	
Total (CO2e metric tons/year):			10.141

Mitigated Area Source			Project-Baseline
	Project	Baseline	
Landscaping Emissions from URBEMIS (CO2 metric tons/year):	0.789	0.000	
Hearth Emissions from URBEMIS (CO2 metric tons/year):	8.648	0.000	
Wood Burning Fireplaces (N2O metric tons/year):	0.000	0.000	
Natural Gas Fireplaces (N2O metric tons/year):	0.000	0.000	
Wood Burning Stoves (CH4 metric tons/year):	0.031	0.000	
Natural Gas Fireplaces (CH4 metric tons/year):	0.000	0.000	
Total (CO2e metric tons/year):	10.141	0.000	
Total (CO2e metric tons/year):			10.141

The URBEMIS area source calculations include five separate categories: 1) natural gas fuel combustion, 2) hearth fuel combustion, 3) landscape maintenance equipment, 4) consumer products, and 5) architectural coatings. This Area Source tab imports CO2 emissions calculated by URBEMIS for hearths and landscape maintenance equipment only. BGM then calculates N2O and CH4 emissions for woodstoves and fireplaces and uses the resulting emissions to calculate CO2e. The consumer products and architectural coatings categories within URBEMIS do not generate GHG emissions and, consequently, are not used by BGM. Also, URBEMIS' estimate of CO2 from natural gas fuel combustion is not used by BGM. Instead, BGM calculates natural gas use and the resulting CO2 emissions in the Electricity and Natural Gas tab.

Electricity and Natural Gas

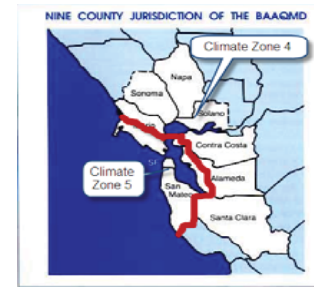
Baseline is currently: OFF

Unmitigated Electricity			
	Project	Baseline	Project-Baseline
CO2 metric tons/year CO2:	98.548	0.000	
CH4 metric tons/year CH4:	0.001	0.000	
N2O metric tons/year:	0.000	0.000	
CO2e metric tons/year:	98.705	0.000	
CO2e metric tons/year:			98.71

Mitigated Electricity			
	Project	Baseline	Project-Baseline
CO2 metric tons/year CO2:	85.407	0.000	
CH4 metric tons/year CH4:	0.001	0.000	
N2O metric tons/year:	0.000	0.000	
CO2e metric tons/year:	85.544	0.000	
CO2e metric tons/year:			85.54

Unmitigated Natural Gas			
	Project	Baseline	Project-Baseline
CO2 metric tons/year:	71.70	0.000	
CH4 metric tons/year:	0.01	0.000	
N2O metric tons/year:	0.00	0.000	
CO2e metric tons/year:	71.88	0.000	
CO2e metric tons/year:			71.88

Mitigated Natural Gas			
	Project	Baseline	Project-Baseline
CO2 metric tons/year:	-173.715	0.000	
CH4 metric tons/year:	-0.016	0.000	
N2O metric tons/year:	0.000	0.000	
CO2e metric tons/year:	-174.161	0.000	
CO2e metric tons/year:			-174.16



For detailed climate zone map see:
<http://capabilities.itron.com/CeusWeb/FCZMap.asp>

Project Climate Zone Location: Zone 4 Zone 5

*** Select Mitigation Measures on the Mitigation Tab ==>

[Mitigation](#)

Clear All User Overrides

PROJECT Residential:

	Number of units (from URBEMIS)	Estimated Electricity Use/Year (kwh/ residence)	Total Residential Electricity Use (mwh /year)	User Override of Residential Electricity Use (mwh/year)	CO2 (metric tons/year)	CH4 (metric tons/yr)	N2O (metric tons/yr)	Estimated Natural Gas Use (MMBtu/residence/year)	Estimated Natural Gas use (MM Btu/year)	User Override of Natural Gas Use (MM Btu/year)	CO2 (metric tons/yr)	CH4 (metric tons/yr)	N2O (metric tons/yr)	Elec Use	Gas Use
Single Family Residential	18.000	6,047.000	108.846		39.733	0.0003	0.0002	49.600	892.800		47.286	0.004	0.000	108.85	892.80
Multi Family Residential	0.000	3,685.000	0.000		0.000	0.0000	0.0000	22.500	0.000		0.000	0.000	0.000	0.00	0.00

PROJECT Nonresidential:

Land Use Type	Square Footage (1,000) from URBEMIS	Estimated Electricity Use/Year (Megawatt-hours)	User Override of Electricity Use/Year (Megawatt-hours)	CO2 (metric tons/yr)	CH4 (metric tons/yr)	N2O (metric tons/yr)	Estimated Natural Gas Use/Year (MM Btu)	User Override of Natural Gas Use (MM Btu/Year)	CO2 (metric tons/yr)	CH4 (metric tons/yr)	N2O (metric tons/yr)	Elect Use	Gas Use
Day-Care Center	3.50	19.27		7.03	0.0001	0.0000	68.53		3.63	0.00034	0.00001	19.27	68.53
Elementary School	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Junior High School	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
High School	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Junior College	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
University/College	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Library	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Place of Worship	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
City Park	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Racquet Club	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Racquetball/Health	6.00	75.89		27.70	0.0002	0.0001	33.07		1.75	0.00017	0.00000	75.89	33.07
Quality Restaurant	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
High Turnover/Sit-Down Restaurant	2.10	65.96		24.08	0.0002	0.0001	359.27		19.03	0.00179	0.00004	65.96	359.27
Fast Food w/Drive Through	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Fast Food w/o Drive Through	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Hotel	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Motel	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Free-Standing Discount Store	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Free-Standing Discount Superstore	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Discount Club	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Regional Shopping Center	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Electronic Superstore	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Home Improvement Superstore	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Strip Mall	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Hardware/Paint Store	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Supermarket	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Convenience Market	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Convenience Market w/gas pumps	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Gasoline Service Station	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Bank w/Drive Through	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
General Office Building	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Office Park	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Government Office Building	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Government Civic Center	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Pharmacy w/Drive Through	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Pharmacy w/o Drive Through	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Medical Office Building	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Hospital	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
Warehouse	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
General Light Industry	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00
General Heavy Industry	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000	0.00	0.00

Industrial Park	0.00	0.00	0.00	0.0000	0.0000	0.00	0.00	0.00000	0.00000	0.00	0.00
Manufacturing	0.00	0.00	0.00	0.0000	0.0000	0.00	0.00	0.00000	0.00000	0.00	0.00

BASELINE Residential:

	Number of units (from URBEMIS)	Estimated Electricity Use/Year (kwh/ residence)	Total Residential Electricity Use (mwh /year)	User Override of Residential Electricity Use (mwh/year)	CO2 (metric tons/year)	CH4 (metric tons/yr)	N2O (metric tons/yr)	Estimated Natural Gas Use (MMBtu/residence/year)	Estimated Natural Gas use (MM Btu/year)	User Override of Natural Gas Use (MM Btu/year)	CO2 (metric tons/yr)	CH4 (metric tons/yr)	N2O (metric tons/yr)
Single Family Residential	0.000	6,047,000	0.000		0.000	0.0000	0.0000	49.600	0.000		0.000	0.000	0.000
Multi Family Residential	0.000	3,685,000	0.000		0.000	0.0000	0.0000	22.500	0.000		0.000	0.000	0.000

BASELINE Nonresidential:

Land Use Type	Square Footage (1,000) from URBEMIS	Estimated Electricity Use/Year (Megawatt-hours)	User Override of Electricity Use/Year (Megawatt-hours)	CO2 (metric tons/yr)	CH4 (metric tons/yr)	N2O (metric tons/yr)	Estimated Natural Gas Use/Year (MM Btu)	User Override of Natural Gas Use (MM Btu/Year)	CO2 (metric tons/yr)	CH4 (metric tons/yr)	N2O (metric tons/yr)
Day-Care Center	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Elementary School	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Junior High School	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
High School	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Junior College	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
University/College	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Library	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Place of Worship	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
City Park	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Racquet Club	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Racquetball/Health	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Quality Restaurant	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
High Turnover/Sit-Down Restaurant	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Fast Food w/Drive Through	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Fast Food w/o Drive Through	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Hotel	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Motel	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Free-Standing Discount Store	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Free-Standing Discount Superstore	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Discount Club	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Regional Shopping Center	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Electronic Superstore	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Home Improvement Superstore	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Strip Mall	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Hardware/Paint Store	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Supermarket	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Convenience Market	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Convenience Market w/gas pumps	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Gasoline Service Station	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Bank w/Drive Through	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
General Office Building	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Office Park	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Government Office Building	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Government Civic Center	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Pharmacy w/Drive Through	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Pharmacy w/o Drive Through	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Medical Office Building	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Hospital	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Warehouse	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
General Light Industry	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
General Heavy Industry	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Industrial Park	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000
Manufacturing	0.00	0.00		0.00	0.0000	0.0000	0.00		0.00	0.00000	0.00000

Greenhouse Gas Emission Factors

	CO2	CH4	N2O
Electricity	804.54	0.0067	0.0037
Units	lbs CO2/mwh	lbs CH4/mwh	lbs N2O/MWH
Natural Gas	53.06	0.005	0.0001
Units	CO2 (kg CO2/MMBtu)	CH4 (kg/MMBtu)	N2O(kg/MMBtu)

Source: Climate Action Registry General Reporting Protocol, Version 3.1, January, 2009.

Source: Climate Action Registry General Reporting Protocol, Version 3.1, January, 2009.

Summary	Climate Zone 4 Summary	Natural Gas (MM Btu/sf)	Climate Zone 5 Summary	Natural Gas (MM Btu/sf)
	Electric (kwh/sf)		Electric (kwh/sf)	
All Commercial	13.64	0.02949	13.19	0.03169
Small Office (<30,000 sf)	17.37	0.00975	14.49	0.02999
Large Office (≥= 30,000 sf)	23.51	0.02639	15.25	0.02328
Restaurant	35.97	0.21255	31.41	0.17108
Retail	12.82	0.00301	12.65	0.00551

Food Store	44.34	0.02577	40.26	0.04135
Refrigerated Warehouse	10.12	0.00388	24.86	0.01869
Unrefrigerated Warehouse	4.26	0.00440	4.56	0.00169
School	6.65	0.02271	5.51	0.01958
College	9.75	0.02754	12.70	0.04185
Health	23.03	0.11871	18.40	0.11073
Lodging	9.33	0.04695	10.03	0.03915
Miscellaneous	9.81	0.02965	8.98	0.02724
All Offices	21.35	0.02052	15.14	0.02426
All Warehouses	5.82	0.00426	7.71	0.00433

Water and Wastewater

Baseline is currently: OFF

Unmitigated Water and Wastewater			
	Project	Baseline	Project-Baseline
CO2 metric tons/year:	4.2860	0.0000	
CH4 metric tons/year:	0.0000	0.0000	
N2O metric tons/year:	0.0000	0.0000	
CO2e metric tons/year:	4.2928	0.0000	
CO2e metric tons/year:			4.29

Mitigated Water and Wastewater			
	Project	Baseline	Project-Baseline
CO2 metric tons/year:	4.1051	0.0000	
CH4 metric tons/year:	0.0000	0.0000	
N2O metric tons/year:	0.0000	0.0000	
CO2e metric tons/year:	4.1117	0.0000	
CO2e metric tons/year:			4.11

*** Select Mitigation Measures on the Mitigation Tab ==> [Mitigation](#)

Clear All User Overrides

	User Override of Model Estimates (af/yr)	Model Estimate (af/yr)	Total Gallons/year	Indoor Gallons/Year	Outdoor Gallons/year	Mitigated Indoor Gallons/Year	Mitigated Outdoor Gallons/year	Total Mitigated kwh/year
Baseline Water Demand		0.00	0	0.00	0.00	0.00	0.00	
Project Water Demand		7.67	2,498,483	1,568,013.39	930,469.48	1,536,653.12	837,422.53	
Net Increase in Water Demand		7.67	2,498,483	1,568,013.39	930,469.48	1,536,653.12	837,422.53	
						8314.83	2930.98	11,245.81

Household Size	
Single Family	Multi-family
2.94	2.65

Land Use Type	Square feet per employee
1 Warehouse	1,700.00
2 Public Assembly	1,300.00
3 Lodging	1,300.00
4 Food Sales	1,000.00
5 Retail and Service	900.00
6 Education	766.00
7 Public Order and Safety	750.00
8 Food Service	600.00
9 Other	550.00
10 Health Care	500.00
11 Office	400.00

Energy Information Administration Special Topics 1995 Building Activities Other, Square feet per employee. http://www.eia.doe.gov/emeu/consumptionbriefs/cbecs/pbawebsite/office/office_howmanyempl.htm

PROJECT	
% indoor water use	0.628
% outdoor water use	0.372
Total	1.00

BASELINE	
% indoor water use	0.000
% outdoor water use	0.000
Total	0.00

Project Water Demand - Indoor	8484.52	kwh/year
Project Water Demand - Outdoor	3256.64	kwh/year
Total	11741.16	kwh/year

Baseline Demand - Indoor	0.00	kwh/year
Baseline Demand - Outdoor	0.00	kwh/year
Total	0.00	kwh/year

Greenhouse Gas Emission Factors	CO2	CH4	N2O
Electricity	804.54	0.0067	0.0037
Units	#/mwh	#/mwh	#/mwh

from California Climate Action Registry, 2009

Table ES-1. Recommended revised water-energy proxies

	Indoor Uses		Outdoor Uses	
	Northern California	Southern California	Northern California	Southern California
	kWh/MG	kWh/MG	kWh/MG	kWh/MG
Water Supply and Conveyance	2,117	9,727	2,117	9,727
Water Treatment	111	111	111	111
Water Distribution	1,272	1,272	1,272	1,272
Wastewater Treatment	1,911	1,911	0	0
Regional Total	5,411	13,022	3,500	11,111

from Navigant, 2006

Gallons Per Acre Foot: 325,900.00

Indoor vs. Outdoor Water Use				From URBEMIS: Project Data		Projected Water Use (gallons/yr)
	Indoor	Outdoor	Total	Land Use Residential	Units	
2001	0.64	0.36	1.00	Single Family Residential	18.00	2,038,149.93
2002	0.64	0.36	1.00	Multi-family Residential	0.00	0.00
2003	0.64	0.36	1.00	LU Type Land Use Nonresidential	Square Feet	Projected Water Use (gallons/yr)

User Provided Blank Land Use Data: Project Data

Mitigation

Mitigation Category

Mitigation Category	Check=On	Mitigation Options	MMBtu/year Reduced	
	Electricity & Natural Gas	<input checked="" type="checkbox"/>	Solar Water Heater	5000
<input type="checkbox"/>		Tankless Water Heater	5000	
				kwh/year reduced
<input checked="" type="checkbox"/>		Cool Roofs/Green Roofs	5000	MMBtu/year Increased 2
				% Increase In Energy Efficiency
<input checked="" type="checkbox"/>		Increase Energy Efficiency Beyond Title 24	10	
				kwh/year generated
<input checked="" type="checkbox"/>		Onsite Renewable Energy Systems - Solar	5000	
<input type="checkbox"/>		Onsite Renewable Energy Systems - Wind	5000	
<input type="checkbox"/>		Onsite Renewable Energy Systems - Other	5000	
Water and Wastewater	<input checked="" type="checkbox"/>	Drought Tolerant Landscaping		% Reduction Outdoor Use 10
				% Reduction Indoor Use
	<input checked="" type="checkbox"/>	Low Flush Toilets		2
Solid Waste	<input checked="" type="checkbox"/>	Reduce Solid Waste by the Following Percentage		Solid Waste Reduction % 10
Refrigerants	<input type="checkbox"/>	Use Ammonia of CFCs or HCFCs		% Reduction 50
Offsets / Credits	<input type="checkbox"/>	Purchase Emission Offsets / Credits		Metric Tons CO2e/Year 5000

Baseline is currently: OFF

	Unmitigated Project-Baseline Emissions CO2e/year	Mitigated Project-Baseline Emissions CO2e/year
Transportation	1,085.42	1,085.42
Area Sources	10.14	10.14
Electricity	98.71	85.54
Natural Gas	71.88	-174.16
Water and Wastewater	4.29	4.11
Solid Waste	52.08	46.87
Ag	0.00	0.00
Off-Road Equipment	0.00	0.00
Refrigerants	0.00	0.00
Sequestration	N/A	0.00
Emission Credits	N/A	0.00
Totals	1,322.52	1,057.93

Calculations for Mitigation Selections

	5000
	0
	-2
Change in Natural Gas Use (MMBtu/year)	4998
	5000
	5000
	0
	0
Change in Electricity Use (kwh/year)	10000
Percentage Reduction in Elec and Nat Gas Use	10
% Reduction Outdoor H2O Use	10
% Reduction Indoor Water Use	2
Solid Waste Reduction %	10
% Reduction in CFC/HCFC Use	0

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