

APPENDIX H
CLIMATE CHANGE MODELING RESULTS

Greenhouse Gas Emission Worksheet

Project Summary

Project: Austin Road - BAU
 Project Number: 0D5141300

Project Totals	Tonnage	Percent of total
Operation		
Vehicular Use	111,303 metric tons CO2e	55%
Electricity	49,518 metric tons CO2e	25%
Natural Gas	21,103 metric tons CO2e	11%
Solid Waste	17,213 metric tons CO2e	9%
Water Use	1,644 metric tons CO2e	1%
Total	200,780 metric tons CO2e	100%

	<i>Low End</i>	<i>High End</i>
Mitigated (CAPCOA) Emissions	#REF!	#REF!
<i>% Reduction</i>	#REF!	#REF!

Mitigated (Best Performance Standards) Emissions	#REF!
<i>% Reduction</i>	#REF!

	<i>Low End</i>	<i>High End</i>
Mitigated Emissions (Post CAPCOA and BPS)	#REF!	#REF!
<i>Total % Reduction</i>	#REF!	#REF!

Greenhouse Gas Emission Worksheet

Operational Emissions

Project:	Austin Road - BAU	Conversion to CO2e Units based on GWP
Project Number:	OD5141300	CH4 21
		N2O 310

Indirect Emissions from Electricity Use

Total Project Annual KWh:	150,108,458 kWh/year	
Project Annual MWh:	150,108 MWh/year	1 ton (short, US) = 0.90718474 metric ton.
		1 metric ton = 2,204.62 pounds

Emission Factors for Electricity Use:	
CO2	724.12 lbs/MWh/year
CH4	0.0302 lbs/MWh/year
N2O	0.0081 lbs/MWh/year

Annual Emissions from Electricity Use:

	Total Emissions	Total CO2e Units
CO2 emissions:	49303.9783 metric tons	49304.0 metric tons CO2e
CH4 emissions:	2.0563 metric tons	43.2 metric tons CO2e
N2O emissions:	0.5515 metric tons	171.0 metric tons CO2e
	Project Total	49,518 metric tons CO2e

Sources:

Table C.1 Comparison of GWPs from the IPCC's 2nd and 3rd TAR, App. C of the CCAR General Reporting Protocol (GAR), Ver. 3.1, Jan. 2009
 Table C.2: CO2, CH4, and N2O Electricity Emission Factors by eGRID Subregion, Subregion CAMX, App C of the CCAR GAR, Ver. 3.1, Jan. 2009.

Emissions from Natural Gas Use

Total Project Usage:	3,977,278 therms/year	1 Therm = 0.1 Million Btu (MMBtu)
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Emission Factors for Natural Gas Use:	
CO2	11.67 lbs/therm
CH4	0.001 lbs/therm
N2O	0.00002 lbs/therm

Annual Emissions from Natural Gas Use:

	Total Emissions	Total CO2e Units
CO2 emissions:	21053.4397 metric tons	21053.4 metric tons CO2e
CH4 emissions:	1.8041 metric tons	37.9 metric tons CO2e
N2O emissions:	0.0361 metric tons	11.2 metric tons CO2e
	Project Total	21,103 metric tons CO2e

Sources:

Table C.7: CO2 Emission Factors for Stationary Combustion, Appendix C of the CCAR GAR, Ver. 3.1, Jan. 2009
 Table C.8 CH4 and N2O Emission Factors for Stationary Combustion by Fuel Type and Sector, Appendix C of the CCAR Protocol, 2009 (for residential, commercial, institutional uses).

Indirect Emissions from Solid Waste

Total Solid Waste:	20,207 tons/year
Landfill Gas:	2,294 tons/year

Annual Emissions from Solid Waste:

	Total Emissions	Total CO2e Units
CO2 emissions:	1460 tons	1324 metric tons CO2e
CH4 emissions:	834 tons	15889 metric tons CO2e
	Project Total	17,213 metric tons CO2e

Sources:

State Workbook: Methodologies for Estimating Greenhouse Gas Emissions (pages 5-1 to 5-3)

Indirect Emissions from Water Use

Indoor Uses	898.80 MG/year
Outdoor Uses*	0.00 MG/year
Total Project Usage:	898.80 MG/year
Northern or Southern Ca?	Northern

Annual Electricity Generation Associated with Water Uses

	Water Consumption (MG)	Energy Factor (MWh/MG)	
Indoor Uses	898.80	5.411	4,863 MWh/year
Outdoor Uses	0.00	3.5	0 MWh/year
Total Project Usage			4,863 MWh/year

Emission Factors for Electricity Use:

CO2	742.12 lbs/MWh/year
CH4	0.0302 lbs/MWh/year
N2O	0.0081 lbs/MWh/year

Annual Emissions from Water Use:

	Total Emissions	Total CO2e Units
CO2 emissions:	1637.1 metric tons	1637.1 metric tons CO2e
CH4 emissions:	0.1 metric tons	1.4 metric tons CO2e
N2O emissions:	0.0 metric tons	5.5 metric tons CO2e
	Project Total	1,644 metric tons CO2e

* - Input manually

Sources:

Table C.5: CO2 Emission Factors and Oxidation Rates for Stationary Combustion, Appendix C of the CCAR Protocol, 2009
 Table C.6 Methane and Nitrous Oxide Emission Factors for Stationary Combustion by Fuel Type, Appendix C of the CCAR Protocol, 2009.
 Table ES-1: Recommended Revised Water-energy Proxies, Refining Estimates of Water-Related Energy Use in California, CEC-500-2006-118.

Greenhouse Gas Emission Worksheet

Mobile Emissions

Project: Austin Road - BAU
 Project Number: 0D5141300

From URBEMIS 2007 Vehicle Fleet Mix Output:

Daily Vehicle Miles Traveled (VMT)*: **646209.0**
 Annual VMT: 235,866,285

Vehicle Type	Percent Type	CH4		N2O	
		Emission Factor (g/mile)	Emission (g/mile)	Emission Factor (g/mile)	Emission (g/mile)
Light Auto	47.5%	0.0147	0.0069825	0.0079	0.0037525
Light Truck < 3750 lbs	11.0%	0.0157	0.001727	0.0101	0.001111
Light Truck 3751-5750 lbs	22.2%	0.0157	0.0034854	0.0101	0.0022422
Med Truck 5751-8500 lbs	9.9%	0.0326	0.0032274	0.0177	0.0017523
Lite-Heavy Truck 8501-10,000 lbs	1.8%	0.0326	0.0005868	0.0177	0.0003186
Lite-Heavy Truck 10,001-14,000 lbs	0.7%	0.0326	0.0002282	0.0177	0.0001239
Med-Heavy Truck 14,001-33,000 lbs	1.1%	0.0326	0.0003586	0.0177	0.0001947
Heavy-Heavy Truck 33,001-60,000 lbs	0.9%	0.0326	0.0002934	0.0177	0.0001593
Other Bus	0.1%	0.0326	0.0000326	0.0177	0.0000177
Urban Bus	0.1%	0.0326	0.0000326	0.0177	0.0000177
Motorcycle	3.5%	0.0147	0.0005145	0.0079	0.0002765
School Bus	0.1%	0.0326	0.0000326	0.0177	0.0000177
Motor Home	1.1%	0.0326	0.0003586	0.0177	0.0001947
Total			0.0178602		0.0101788

* from URBEMIS output
 1 ton (short, US) = 0.90718474 metric ton.
 1g = 0.000001 metric ton

Annual Mobile Emissions:

	Total Emissions	Total CO2e units
CO2 Emissions*:	121772.5 tons CO2	110,470 metric tons CO2e
CH4 Emissions:	4.2 metric tons CH4	88 metric tons CO2e
N2O Emissions:	2.4 metric tons N2O	744 metric tons CO2e
Project Total:		111,303 metric tons CO2e

* from URBEMIS output. 1 ton (short, US) = 0.90718474 metric ton.

Electricity Calcs

Project Area	Electricity Generation Rate*	Use	Size/type	Subtotal (kWH/year)	
2358	units	13,311.00 kWH/year/unit	Single-family detached	owned	31,387,338
	units	8,994.00 kWH/year/unit	Single-family attached	owned	-
	units	7,348.00 kWH/year/unit	Apartments in 2-4 unit bldg	owned	-
	units	6,959.00 kWH/year/unit	Apartments in 5+ unit bldg	owned	-
	units	11,981.00 kWH/year/unit	Mobile homes	owned	-
	units	11,940.00 kWH/year/unit	Single-family detached	rented	-
	units	9,539.00 kWH/year/unit	Single-family attached	rented	-
	units	7,495.00 kWH/year/unit	Apartments in 2-4 unit bldg	rented	-
1840	units	7,008.00 kWH/year/unit	Apartments in 5+ unit bldg	rented	12,894,720
	units	10,857.00 kWH/year/unit	Mobile homes	rented	-
	sf	11.10 kWH/year/sf	Education	1-10k sf	-
	sf	10.20 kWH/year/sf	Education	10k - 100k sf	-
	sf	12.20 kWH/year/sf	Education	100k+ sf	-
	sf	48.8 kWH/year/sf	Food sales	1-10k sf	-
	sf	51.1 kWH/year/sf	Food sales	10k - 100k sf	-
	sf	47.8 kWH/year/sf	Food service	1-10k sf	-
	sf	24.5 kWH/year/sf	Food service	10k - 100k sf	-
	sf	13.1 kWH/year/sf	Health Care	1-10k sf	-
	sf	20.5 kWH/year/sf	Health Care	10k - 100k sf	-
	sf	26.3 kWH/year/sf	Health Care	100k+ sf	-
	sf	27 kWH/year/sf	Health Care (inpatient)	100k+ sf	-
	sf	13.1 kWH/year/sf	Health Care (outpatient)	1-10k sf	-
	sf	17.4 kWH/year/sf	Health Care (outpatient)	10k - 100k sf	-
	sf	14 kWH/year/sf	Lodging	1-10k sf	-
	sf	13.5 kWH/year/sf	Lodging	10k - 100k sf	-
	sf	13.5 kWH/year/sf	Lodging	100k+ sf	-
	sf	14.2 kWH/year/sf	Mercantile - other than retail and mall	1-10k sf	-
	sf	19 kWH/year/sf	Mercantile - other than retail and mall	10k - 100k sf	-
	sf	21.9 kWH/year/sf	Mercantile - other than retail and mall	100k+ sf	-
	sf	12.2 kWH/year/sf	Retail - other than mall	1-10k sf	-
	sf	12.9 kWH/year/sf	Retail - other than mall	10k - 100k sf	-
1588000	sf	21.5 kWH/year/sf	Retail - other than mall	100k+ sf	34,142,000
	sf	19.1 kWH/year/sf	Enclosed and Strip Mall	1-10k sf	-
	sf	23.1 kWH/year/sf	Enclosed and Strip Mall	10k - 100k sf	-
	sf	22 kWH/year/sf	Enclosed and Strip Mall	100k+ sf	-
	sf	12.9 kWH/year/sf	Office	1-10k sf	-
294000	sf	16.4 kWH/year/sf	Office	10k - 100k sf	4,821,600
	sf	19.9 kWH/year/sf	Office	100k+ sf	-
	sf	11.6 kWH/year/sf	Public Assembly	1-10k sf	-
	sf	11.2 kWH/year/sf	Public Assembly	10k - 100k sf	-
	sf	10.4 kWH/year/sf	Public Order and Safety	1-10k sf	-
	sf	14.9 kWH/year/sf	Public Order and Safety	10k - 100k sf	-
	sf	4.5 kWH/year/sf	Religious Worship	1-10k sf	-
	sf	4.7 kWH/year/sf	Religious Worship	10k - 100k sf	-
	sf	8.2 kWH/year/sf	Service	1-10k sf	-
	sf	10.2 kWH/year/sf	Service	10k - 100k sf	-
	sf	5.8 kWH/year/sf	Warehouse and Storage	1-10k sf	-
	sf	5.5 kWH/year/sf	Warehouse and Storage	10k - 100k sf	-
6191000	sf	10.8 kWH/year/sf	Warehouse and Storage	100k+ sf	66,862,800
	sf	9.6 kWH/year/sf	Other	1-10k sf	-
	sf	19.1 kWH/year/sf	Other	10k - 100k sf	-
	sf	27.6 kWH/year/sf	Other	100k+ sf	-
		Total			150,108,458 kWH/year

* Energy Information Administration, Office of Energy Markets and End Use, Residential Energy Consumption Survey 2005 Data Table US8 and Forms EIA-871A, C, and E of the 2003 Commercial Buildings Energy Consumption Survey.

Natural Gas Calcs

Project Area	Natural Gas Usage Rate*	Use	Size/type	Subtotal (cf/year)	
2358	units	74,000.00 cf/year/unit	Single-family detached	owned	174,492,000
	units	69,000.00 cf/year/unit	Single-family attached	owned	-
	units	66,000.00 cf/year/unit	Apartments in 2-4 unit bldg	owned	-
	units	51,000.00 cf/year/unit	Apartments in 5+ unit bldg	owned	-
	units	51,000.00 cf/year/unit	Mobile homes	owned	-
	units	67,000.00 cf/year/unit	Single-family detached	rented	-
	units	65,000.00 cf/year/unit	Single-family attached	rented	-
	units	59,000.00 cf/year/unit	Apartments in 2-4 unit bldg	rented	-
1840	units	40,000.00 cf/year/unit	Apartments in 5+ unit bldg	rented	73,600,000
	units	60,000.00 cf/year/unit	Mobile homes	rented	-
	sf	53.90 cf/year/sf	Education	1-10k sf	-
	sf	37.60 cf/year/sf	Education	10k - 100k sf	-
	sf	33.70 cf/year/sf	Education	100k+ sf	-
	sf	46.6 cf/year/sf	Food sales	1-10k sf	-
	sf	192.5 cf/year/sf	Food service	1-10k sf	-
	sf	77.2 cf/year/sf	Food service	10k - 100k sf	-
	sf	49.5 cf/year/sf	Health Care	1-10k sf	-
	sf	70.8 cf/year/sf	Health Care	10k - 100k sf	-
	sf	104.4 cf/year/sf	Health Care	100k+ sf	-
	sf	109 cf/year/sf	Health Care (inpatient)	100k+ sf	-
	sf	49.5 cf/year/sf	Health Care (outpatient)	1-10k sf	-
	sf	52.3 cf/year/sf	Health Care (outpatient)	10k - 100k sf	-
	sf	47.6 cf/year/sf	Lodging	10k - 100k sf	-
	sf	47.4 cf/year/sf	Lodging	100k+ sf	-
	sf	55.2 cf/year/sf	Mercantile - other than retail and n	1-10k sf	-
	sf	37.6 cf/year/sf	Mercantile - other than retail and n	10k - 100k sf	-
	sf	19.1 cf/year/sf	Mercantile - other than retail and n	100k+ sf	-
	sf	52.7 cf/year/sf	Retail - other than mall	1-10k sf	-
	sf	27.7 cf/year/sf	Retail - other than mall	10k - 100k sf	-
1588000	sf	15.7 cf/year/sf	Retail - other than mall	100k+ sf	24,931,600
	sf	60 cf/year/sf	Enclosed and Strip Mall	1-10k sf	-
	sf	44 cf/year/sf	Enclosed and Strip Mall	10k - 100k sf	-
	sf	20.1 cf/year/sf	Enclosed and Strip Mall	100k+ sf	-
	sf	42.4 cf/year/sf	Office	1-10k sf	-
294000	sf	36.7 cf/year/sf	Office	10k - 100k sf	10,789,800
	sf	23.7 cf/year/sf	Office	100k+ sf	-
	sf	41.5 cf/year/sf	Public Assembly	1-10k sf	-
	sf	42.5 cf/year/sf	Public Assembly	10k - 100k sf	-
	sf	42.7 cf/year/sf	Religious Worship	1-10k sf	-
	sf	27.7 cf/year/sf	Religious Worship	10k - 100k sf	-
	sf	69.8 cf/year/sf	Service	1-10k sf	-
	sf	50.7 cf/year/sf	Service	10k - 100k sf	-
	sf	34.2 cf/year/sf	Warehouse and Storage	1-10k sf	-
	sf	26 cf/year/sf	Warehouse and Storage	10k - 100k sf	-
6191000	sf	18.4 cf/year/sf	Warehouse and Storage	100k+ sf	113,914,400
	sf	91.1 cf/year/sf	Other	10k - 100k sf	-
		Total			397,727,800 cf/year
					or
					3,977,278.00 therms/yea

* Energy Information Administration, Office of Energy Markets and End Use, Residential Energy Consumption Survey 2005 Data Table US8 and Forms EIA-871A, C, and E of the 2003 Commercial Buildings Energy Consumption Survey.

Solid Waste Calcs

<i>Project Area</i>	<i>Solid Waste Generation Rate*</i>	<i>Use</i>	<i>Subtotal (tons/year)</i>
294000 sf	0.01 lbs/sf/day	Office	537
1588000 sf	0.025 lbs/sf/day	Shopping Center	7,245
sf	0.0312 lbs/sf/day	Department Store	-
6191000 sf	0.006 lbs/sf/day	Manufacturing/warehouse	6,779
sf	0.007 lbs/sf/day	School	-
beds	16 lbs/bed/day	Hospital	-
2358 unit	10 lbs/unit/day	Single-family Residential	4,303
1840 unit	4 lbs/unit/day	Multi-family Residential	1,343
Total			20,207 tons/year

* CIWMB Estimate Solid Waste Generation Rates (use other rates as appropriate)

Greenhouse Gas Emission Worksheet

Project Summary

Project: Austin Road - Project
 Project Number: 0D5141300

Project Totals	Tonnage	Percent of total
Construction		
Total	73,319 metric tons CO2	100%
Operation		
Vehicular Use	111,303 metric tons CO2e	55%
Electricity	49,518 metric tons CO2e	25%
Natural Gas	21,103 metric tons CO2e	11%
Solid Waste	17,213 metric tons CO2e	9%
Water Use	1,644 metric tons CO2e	1%
Total	200,780 metric tons CO2e	100%

	<i>Low End</i>	<i>High End</i>
Mitigated (CAPCOA) Emissions	200,780	200,780
<i>% Reduction</i>	0%	0%

Mitigated (Best Performance Standards) Emissions	183,965
<i>% Reduction</i>	8.38%

	<i>Low End</i>	<i>High End</i>
Mitigated Emissions (Post CAPCOA and BPS)	183,965	183,965
<i>Total % Reduction</i>	8.38%	8.38%

Greenhouse Gas Emission Worksheet

Construction Emissions

Project: Austin Road - Project
Project Number: 0D5141300

1 ton (short, US) = 0.90718474 metric ton.

Off-Road Construction Equipment

Year	Phase	tons CO2	metric tons CO2
2010	1	707.5	642
2011	1	14484.35	13140
2012	1,2	8417.6	7636
2013	2,3,4	1768.9	1605
2014	3,4	3811.13	3457
2015	3,4	6746.56	6120
2016	3,4	6747.59	6121
2017	3,4	6722.48	6099
2018	3,4	6748.81	6122
2019	3,4	6749.06	6123
2020	5	3145.69	2854
2021	5	7399.71	6713
2022	5	7371.36	6687
			0
Total		80820.74	73319

Source: URBEMIS 2007, version 9.2.4

Greenhouse Gas Emission Worksheet

Operational Emissions

Project:	Austin Road - Project	Conversion to CO2e Units based on GWP
Project Number:	OD5141300	CH4 21
		N2O 310

Indirect Emissions from Electricity Use

Total Project Annual KWh:	150,108,458 kWh/year	
Project Annual MWh:	150,108 MWh/year	1 ton (short, US) = 0.90718474 metric ton.
		1 metric ton = 2,204.62 pounds

Emission Factors for Electricity Use:	
CO2	724.12 lbs/MWh/year
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Annual Emissions from Electricity Use:

	Total Emissions	Total CO2e Units
CO2 emissions:	49303.9783 metric tons	49304.0 metric tons CO2e
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N2O emissions:	0.5515 metric tons	171.0 metric tons CO2e
	Project Total	49,518 metric tons CO2e

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 Table C.2: CO2, CH4, and N2O Electricity Emission Factors by eGRID Subregion, Subregion CAMX, App C of the CCAR GAR, Ver. 3.1, Jan. 2009.

Emissions from Natural Gas Use

Total Project Usage:	3,977,278 therms/year	1 Therm = 0.1 Million Btu (MMBtu)
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Emission Factors for Natural Gas Use:	
CO2	11.67 lbs/therm
CH4	0.001 lbs/therm
N2O	0.00002 lbs/therm

Annual Emissions from Natural Gas Use:

	Total Emissions	Total CO2e Units
CO2 emissions:	21053.4397 metric tons	21053.4 metric tons CO2e
CH4 emissions:	1.8041 metric tons	37.9 metric tons CO2e
N2O emissions:	0.0361 metric tons	11.2 metric tons CO2e
	Project Total	21,103 metric tons CO2e

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Table C.7: CO2 Emission Factors for Stationary Combustion, Appendix C of the CCAR GAR, Ver. 3.1, Jan. 2009
 Table C.8 CH4 and N2O Emission Factors for Stationary Combustion by Fuel Type and Sector, Appendix C of the CCAR Protocol, 2009 (for residential, commercial, institutional uses).

Indirect Emissions from Solid Waste

Total Solid Waste:	20,207 tons/year
Landfill Gas:	2,294 tons/year

Annual Emissions from Solid Waste:

	Total Emissions	Total CO2e Units
CO2 emissions:	1460 tons	1324 metric tons CO2e
CH4 emissions:	834 tons	15889 metric tons CO2e
	Project Total	17,213 metric tons CO2e

Sources:

State Workbook: Methodologies for Estimating Greenhouse Gas Emissions (pages 5-1 to 5-3)

Indirect Emissions from Water Use

Indoor Uses	898.80 MG/year
Outdoor Uses*	0.00 MG/year
Total Project Usage:	898.80 MG/year
Northern or Southern Ca?	Northern

Annual Electricity Generation Associated with Water Uses

	Water Consumption (MG)	Energy Factor (MWh/MG)	
Indoor Uses	898.80	5.411	4,863 MWh/year
Outdoor Uses	0.00	3.5	0 MWh/year
Total Project Usage			4,863 MWh/year

Emission Factors for Electricity Use:

CO2	742.12 lbs/MWh/year
CH4	0.0302 lbs/MWh/year
N2O	0.0081 lbs/MWh/year

Annual Emissions from Water Use:

	Total Emissions	Total CO2e Units
CO2 emissions:	1637.1 metric tons	1637.1 metric tons CO2e
CH4 emissions:	0.1 metric tons	1.4 metric tons CO2e
N2O emissions:	0.0 metric tons	5.5 metric tons CO2e
	Project Total	1,644 metric tons CO2e

* - Input manually

Sources:

Table C.5: CO2 Emission Factors and Oxidation Rates for Stationary Combustion, Appendix C of the CCAR Protocol, 2009
 Table C.6 Methane and Nitrous Oxide Emission Factors for Stationary Combustion by Fuel Type, Appendix C of the CCAR Protocol, 2009.
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Greenhouse Gas Emission Worksheet

Mobile Emissions

Project: Austin Road - Project
 Project Number: 0D5141300

From URBEMIS 2007 Vehicle Fleet Mix Output:

Daily Vehicle Miles Traveled (VMT)*: **646209.0**
 Annual VMT: 235,866,285

Vehicle Type	Percent Type	CH4		N2O	
		Emission Factor (g/mile)	Emission (g/mile)	Emission Factor (g/mile)	Emission (g/mile)
Light Auto	47.5%	0.0147	0.0069825	0.0079	0.0037525
Light Truck < 3750 lbs	11.0%	0.0157	0.001727	0.0101	0.001111
Light Truck 3751-5750 lbs	22.2%	0.0157	0.0034854	0.0101	0.0022422
Med Truck 5751-8500 lbs	9.9%	0.0326	0.0032274	0.0177	0.0017523
Lite-Heavy Truck 8501-10,000 lbs	1.8%	0.0326	0.0005868	0.0177	0.0003186
Lite-Heavy Truck 10,001-14,000 lbs	0.7%	0.0326	0.0002282	0.0177	0.0001239
Med-Heavy Truck 14,001-33,000 lbs	1.1%	0.0326	0.0003586	0.0177	0.0001947
Heavy-Heavy Truck 33,001-60,000 lbs	0.9%	0.0326	0.0002934	0.0177	0.0001593
Other Bus	0.1%	0.0326	0.0000326	0.0177	0.0000177
Urban Bus	0.1%	0.0326	0.0000326	0.0177	0.0000177
Motorcycle	3.5%	0.0147	0.0005145	0.0079	0.0002765
School Bus	0.1%	0.0326	0.0000326	0.0177	0.0000177
Motor Home	1.1%	0.0326	0.0003586	0.0177	0.0001947
Total			0.0178602		0.0101788

* from URBEMIS output
 1 ton (short, US) = 0.90718474 metric ton.
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Annual Mobile Emissions:

	Total Emissions	Total CO2e units
CO2 Emissions*:	121772.5 tons CO2	110,470 metric tons CO2e
CH4 Emissions:	4.2 metric tons CH4	88 metric tons CO2e
N2O Emissions:	2.4 metric tons N2O	744 metric tons CO2e
Project Total:		111,303 metric tons CO2e

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Electricity Calcs

Project Area	Electricity Generation Rate*	Use	Size/type	Subtotal (kWH/year)	
2358	units	13,311.00 kWH/year/unit	Single-family detached	owned	31,387,338
	units	8,994.00 kWH/year/unit	Single-family attached	owned	-
	units	7,348.00 kWH/year/unit	Apartments in 2-4 unit bldg	owned	-
	units	6,959.00 kWH/year/unit	Apartments in 5+ unit bldg	owned	-
	units	11,981.00 kWH/year/unit	Mobile homes	owned	-
	units	11,940.00 kWH/year/unit	Single-family detached	rented	-
	units	9,539.00 kWH/year/unit	Single-family attached	rented	-
	units	7,495.00 kWH/year/unit	Apartments in 2-4 unit bldg	rented	-
1840	units	7,008.00 kWH/year/unit	Apartments in 5+ unit bldg	rented	12,894,720
	units	10,857.00 kWH/year/unit	Mobile homes	rented	-
	sf	11.10 kWH/year/sf	Education	1-10k sf	-
	sf	10.20 kWH/year/sf	Education	10k - 100k sf	-
	sf	12.20 kWH/year/sf	Education	100k+ sf	-
	sf	48.8 kWH/year/sf	Food sales	1-10k sf	-
	sf	51.1 kWH/year/sf	Food sales	10k - 100k sf	-
	sf	47.8 kWH/year/sf	Food service	1-10k sf	-
	sf	24.5 kWH/year/sf	Food service	10k - 100k sf	-
	sf	13.1 kWH/year/sf	Health Care	1-10k sf	-
	sf	20.5 kWH/year/sf	Health Care	10k - 100k sf	-
	sf	26.3 kWH/year/sf	Health Care	100k+ sf	-
	sf	27 kWH/year/sf	Health Care (inpatient)	100k+ sf	-
	sf	13.1 kWH/year/sf	Health Care (outpatient)	1-10k sf	-
	sf	17.4 kWH/year/sf	Health Care (outpatient)	10k - 100k sf	-
	sf	14 kWH/year/sf	Lodging	1-10k sf	-
	sf	13.5 kWH/year/sf	Lodging	10k - 100k sf	-
	sf	13.5 kWH/year/sf	Lodging	100k+ sf	-
	sf	14.2 kWH/year/sf	Mercantile - other than retail and mall	1-10k sf	-
	sf	19 kWH/year/sf	Mercantile - other than retail and mall	10k - 100k sf	-
	sf	21.9 kWH/year/sf	Mercantile - other than retail and mall	100k+ sf	-
	sf	12.2 kWH/year/sf	Retail - other than mall	1-10k sf	-
	sf	12.9 kWH/year/sf	Retail - other than mall	10k - 100k sf	-
1588000	sf	21.5 kWH/year/sf	Retail - other than mall	100k+ sf	34,142,000
	sf	19.1 kWH/year/sf	Enclosed and Strip Mall	1-10k sf	-
	sf	23.1 kWH/year/sf	Enclosed and Strip Mall	10k - 100k sf	-
	sf	22 kWH/year/sf	Enclosed and Strip Mall	100k+ sf	-
	sf	12.9 kWH/year/sf	Office	1-10k sf	-
294000	sf	16.4 kWH/year/sf	Office	10k - 100k sf	4,821,600
	sf	19.9 kWH/year/sf	Office	100k+ sf	-
	sf	11.6 kWH/year/sf	Public Assembly	1-10k sf	-
	sf	11.2 kWH/year/sf	Public Assembly	10k - 100k sf	-
	sf	10.4 kWH/year/sf	Public Order and Safety	1-10k sf	-
	sf	14.9 kWH/year/sf	Public Order and Safety	10k - 100k sf	-
	sf	4.5 kWH/year/sf	Religious Worship	1-10k sf	-
	sf	4.7 kWH/year/sf	Religious Worship	10k - 100k sf	-
	sf	8.2 kWH/year/sf	Service	1-10k sf	-
	sf	10.2 kWH/year/sf	Service	10k - 100k sf	-
	sf	5.8 kWH/year/sf	Warehouse and Storage	1-10k sf	-
	sf	5.5 kWH/year/sf	Warehouse and Storage	10k - 100k sf	-
6191000	sf	10.8 kWH/year/sf	Warehouse and Storage	100k+ sf	66,862,800
	sf	9.6 kWH/year/sf	Other	1-10k sf	-
	sf	19.1 kWH/year/sf	Other	10k - 100k sf	-
	sf	27.6 kWH/year/sf	Other	100k+ sf	-
		Total			150,108,458 kWH/year

* Energy Information Administration, Office of Energy Markets and End Use, Residential Energy Consumption Survey 2005 Data Table US8 and Forms EIA-871A, C, and E of the 2003 Commercial Buildings Energy Consumption Survey.

Natural Gas Calcs

Project Area	Natural Gas Usage Rate*	Use	Size/type	Subtotal (cf/year)	
2358	units	74,000.00 cf/year/unit	Single-family detached	owned	174,492,000
	units	69,000.00 cf/year/unit	Single-family attached	owned	-
	units	66,000.00 cf/year/unit	Apartments in 2-4 unit bldg	owned	-
	units	51,000.00 cf/year/unit	Apartments in 5+ unit bldg	owned	-
	units	51,000.00 cf/year/unit	Mobile homes	owned	-
	units	67,000.00 cf/year/unit	Single-family detached	rented	-
	units	65,000.00 cf/year/unit	Single-family attached	rented	-
	units	59,000.00 cf/year/unit	Apartments in 2-4 unit bldg	rented	-
1840	units	40,000.00 cf/year/unit	Apartments in 5+ unit bldg	rented	73,600,000
	units	60,000.00 cf/year/unit	Mobile homes	rented	-
	sf	53.90 cf/year/sf	Education	1-10k sf	-
	sf	37.60 cf/year/sf	Education	10k - 100k sf	-
	sf	33.70 cf/year/sf	Education	100k+ sf	-
	sf	46.6 cf/year/sf	Food sales	1-10k sf	-
	sf	192.5 cf/year/sf	Food service	1-10k sf	-
	sf	77.2 cf/year/sf	Food service	10k - 100k sf	-
	sf	49.5 cf/year/sf	Health Care	1-10k sf	-
	sf	70.8 cf/year/sf	Health Care	10k - 100k sf	-
	sf	104.4 cf/year/sf	Health Care	100k+ sf	-
	sf	109 cf/year/sf	Health Care (inpatient)	100k+ sf	-
	sf	49.5 cf/year/sf	Health Care (outpatient)	1-10k sf	-
	sf	52.3 cf/year/sf	Health Care (outpatient)	10k - 100k sf	-
	sf	47.6 cf/year/sf	Lodging	10k - 100k sf	-
	sf	47.4 cf/year/sf	Lodging	100k+ sf	-
	sf	55.2 cf/year/sf	Mercantile - other than retail and n	1-10k sf	-
	sf	37.6 cf/year/sf	Mercantile - other than retail and n	10k - 100k sf	-
	sf	19.1 cf/year/sf	Mercantile - other than retail and n	100k+ sf	-
	sf	52.7 cf/year/sf	Retail - other than mall	1-10k sf	-
	sf	27.7 cf/year/sf	Retail - other than mall	10k - 100k sf	-
1588000	sf	15.7 cf/year/sf	Retail - other than mall	100k+ sf	24,931,600
	sf	60 cf/year/sf	Enclosed and Strip Mall	1-10k sf	-
	sf	44 cf/year/sf	Enclosed and Strip Mall	10k - 100k sf	-
	sf	20.1 cf/year/sf	Enclosed and Strip Mall	100k+ sf	-
	sf	42.4 cf/year/sf	Office	1-10k sf	-
294000	sf	36.7 cf/year/sf	Office	10k - 100k sf	10,789,800
	sf	23.7 cf/year/sf	Office	100k+ sf	-
	sf	41.5 cf/year/sf	Public Assembly	1-10k sf	-
	sf	42.5 cf/year/sf	Public Assembly	10k - 100k sf	-
	sf	42.7 cf/year/sf	Religious Worship	1-10k sf	-
	sf	27.7 cf/year/sf	Religious Worship	10k - 100k sf	-
	sf	69.8 cf/year/sf	Service	1-10k sf	-
	sf	50.7 cf/year/sf	Service	10k - 100k sf	-
	sf	34.2 cf/year/sf	Warehouse and Storage	1-10k sf	-
	sf	26 cf/year/sf	Warehouse and Storage	10k - 100k sf	-
6191000	sf	18.4 cf/year/sf	Warehouse and Storage	100k+ sf	113,914,400
	sf	91.1 cf/year/sf	Other	10k - 100k sf	-
		Total			397,727,800 cf/year
					or
					3,977,278.00 therms/yea

* Energy Information Administration, Office of Energy Markets and End Use, Residential Energy Consumption Survey 2005 Data Table US8 and Forms EIA-871A, C, and E of the 2003 Commercial Buildings Energy Consumption Survey.

Solid Waste Calcs

<i>Project Area</i>	<i>Solid Waste Generation Rate*</i>	<i>Use</i>	<i>Subtotal (tons/year)</i>
294000 sf	0.01 lbs/sf/day	Office	537
1588000 sf	0.025 lbs/sf/day	Shopping Center	7,245
sf	0.0312 lbs/sf/day	Department Store	-
6191000 sf	0.006 lbs/sf/day	Manufacturing/warehouse	6,779
sf	0.007 lbs/sf/day	School	-
beds	16 lbs/bed/day	Hospital	-
2358 unit	10 lbs/unit/day	Single-family Residential	4,303
1840 unit	4 lbs/unit/day	Multi-family Residential	1,343
Total			20,207 tons/year

* CIWMB Estimate Solid Waste Generation Rates (use other rates as appropriate)

CAPCOA GHG Reduction Measures								
Measure	Name	Recommended Reduction	Description	Notes	Project Feature/Equivalent	Project Reduction		Equivalent Best Performance Standard?
						Low End	High End	
MM T-1	Bike Parking	1%	Nonresidential projects provide plentiful short- and long-term bicycle parking facilities to meet peak season maximum demand (e.g., one bike rack space per 20 vehicle/employee parking spaces).	Range 1-5% for T-1 through T-4 combined				
MM T-2	End of Trip Facilities	1%	Nonresidential projects provide "end-of-trip" facilities including showers, lockers, and changing space (e.g., four clothes lockers and one shower provided for every 80 employee parking spaces, separate facilities for each gender for projects with 160 or more employee parking spaces).					
MM T-3	Bike Parking at Multi-Unit Residential	1%	Long-term bicycle parking is provided at apartment complexes or condominiums without garages (e.g., one long-term bicycle parking space for each unit without a garage). Long-term facilities shall consist of one of the following: a bicycle locker, a locked room with standard racks and access limited to bicyclists only, or a standard rack in a location that is staffed and/or monitored by video surveillance 24 hours per day.					
MM T-4	Proximity to Bike Path/Bike Lanes	1%	Entire project is located within one-half mile of an existing/planned Class I or Class II bike lane and project design includes a comparable network that connects the project uses to the existing offsite facility. Project design includes a designated bicycle route connecting all units, onsite bicycle parking facilities, offsite bicycle facilities, site entrances, and primary building entrances to existing Class I or Class II bike lane(s) within one half mile. Bicycle route connects to all streets contiguous with project site. Bicycle route has minimum conflicts with automobile parking and circulation facilities. All streets internal to the project wider than 75 feet have Class II bicycle lanes on both sides.					
MM T-5	Pedestrian Network	1-10%	The project provides a pedestrian access network that internally links all uses and connects to all existing/planned external streets and pedestrian facilities contiguous with the project site. Project design includes a designated pedestrian route interconnecting all internal uses, site entrances, primary building entrances, public facilities, and adjacent uses to existing external pedestrian facilities and streets. Route has minimal conflict with parking and automobile circulation facilities. Streets (with the exception of alleys) within the project have sidewalks on both sides. All sidewalks internal and adjacent to project site are minimum of five feet wide. All sidewalks feature vertical curbs.	Range 1-5% for T-5 through T-6 combined				
			Pedestrian facilities and improvements such as grade separation, wider sidewalks, and traffic calming are implemented wherever feasible to minimize pedestrian barriers. All site entrances provide pedestrian access.					
MM T-6	Pedestrian Barriers Minimized	1-10%	Site design and building placement minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between residential and nonresidential uses that impede bicycle or pedestrian circulation are eliminated.					
MM T-7	Bus Shelter for Existing/Planned Transit Service	1-2%	Bus or streetcar service provides headways of one hour or less for stops within one-quarter mile; project provides safe and convenient bicycle/pedestrian access to transit stop(s) and provides essential transit stop improvements (i.e., shelters, route information, benches, and lighting).					
MM T-8	Traffic Calming	1-10%	Project design includes pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements. Roadways are designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips by featuring traffic calming features. All sidewalks internal and adjacent to project site are minimum of five feet wide. All sidewalks feature vertical curbs. Roadways that converge internally within the project are routed in such a way as to avoid "skewed intersections," which are intersections that meet at acute, rather than right, angles. Intersections internal and adjacent to the project feature one or more of the following pedestrian safety/traffic calming design techniques: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, and roundabouts or mini-circles. Streets internal and adjacent to the project feature pedestrian safety/traffic calming measures such as on-street parking, planter strips with street trees, and chicanes/chokers (variations in road width to discourage high-speed travel).					

CAPCOA GHG Reduction Measures								
Measure	Name	Recommended Reduction	Description	Notes	Project Feature/Equivalent	Project Reduction		Equivalent Best Performance Standard?
						Low End	High End	
MM T-9	Paid Parking (Parking Cash Out)	1-30%	Project provides employee and/or customer paid parking system. Project must have a permanent and enforceable method of maintaining user fees for all parking facilities. The facility may not provide customer or employee validations. Daily charge for parking must be equal to or greater than the cost of a transit day/monthly pass plus 20 percent.					
MM T-10	Minimum Parking	1-30%	Provide minimum amount of parking required. Once land uses are determined, the trip reduction factor associated with this measure can be determined by utilizing the ITE parking generation publication. The reduction in trips can be computed as shown below by the ratio of the difference of minimum parking required by code and ITE peak parking demand to ITE peak parking demand for the land uses multiplied by 50%. Percent Trip Reduction = 50 * [(min parking required by code - ITE peak parking demand) / (ITE peak parking demand)]					
MM T-11	Parking Reduction Beyond Code/Shared Parking	1-30%	Provide parking reduction less than code. This measure can be readily implemented through a shared parking strategy, wherein parking is utilized jointly among different land uses, buildings, and facilities in an area that experience peak parking needs at different times of day and day of the week.					
MM T-12	Pedestrian Pathway Through Parking	1-4%	Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances.					
MM T-13	Off-Street Parking	1-4%	Parking facilities are not adjacent to street frontage.					
MM T-14	Parking Area Tree Cover	Reduction of 3.1 kg/m ² canopy	Provide parking lot areas with 50 percent tree cover within 10 years of construction, in particular low emitting, low maintenance, native drought resistant trees. Reduces urban heat island effect and requirement for air conditioning, effective when combined with other measures (e.g., electrical maintenance equipment and reflective paving material).					N
MM T-15	Valet Bicycle Parking	n/a, low	Provide spaces for the operation of valet bicycle parking at community event "centers" such as amphitheaters, theaters, and stadiums.					N
MM T-16	Garage Bicycle Storage	n/a, low	Provide storage space in one-car garages for bicycles and bicycle trailers.					N
MM T-17	Preferential Parking for EVs/CNG Vehicles	n/a, low	Provide preferential parking space locations for Electric Vehicles (EV) or Compressed Natural Gas (CNG) vehicles.					N
MM T-18	Reduced/No Parking Fee for EVs/CNG Vehicles	n/a, low	Provide a reduced/no parking fee for EVs/CNG vehicles.					N
MM T-19	TMA Membership	1-28%	Include permanent TMA membership and funding requirement. Funding to be provided by Community Facilities District or County Service Area or other nonrevocable funding mechanism. TDMs have been shown to reduce employee vehicle trips up to 28% with the largest reductions achieved through parking pricing and transit passes. The impact depends on the travel alternatives.					N
MM T-20	ULEV	n/a, low	Use of and/or provide ULEV that are 50% cleaner than average new model cars (e.g., natural gas, ethanol, electric).					N
MM T-21	Flex Fuel Vehicles	5466 lb GHG/year	Use of and/or provide vehicles that utilize gasoline/ethanol blends (e.g., E85).					N
MM D-1	Office/Mixed Use Density	0.05%-2%	Project provides high density office or mixed-use proximate to transit. Project must provide safe and convenient pedestrian and bicycle access to all transit stops within one-quarter mile.					
MM D-2	Orientation to Existing/Planned Transit, Bikeway, or Pedestrian Corridor	0.4-1%	Project is oriented towards existing transit, bicycle, or pedestrian corridor. Setback distance between project and existing or planned adjacent uses is minimized or nonexistent. Setback distance between different buildings on project site is minimized. Setbacks between project buildings and planned or existing sidewalks are minimized. Buildings are oriented towards existing or planned street frontage. Primary entrances to buildings are located along planned or existing public street frontage. Project provides bicycle access to any planned bicycle corridor(s). Project provides pedestrian access to any planned pedestrian corridor(s).					
MM D-3	Services Operational	0.5-5%	Project provides on-site shops and services for employees.					N
MM D-4	Residential Density (Employ Sufficient Density for New Residential Development to Support the Use of Public Transit)	1-40%	Project provides high-density residential development. Transit facilities must be within one quarter mile of project border. Project provides safe and convenient bicycle/pedestrian access to all transit stop(s) within one-quarter mile of project border.	See report for VMT reduction formula	See report for VMT reduction formula			

CAPCOA GHG Reduction Measures								
Measure	Name	Recommended Reduction	Description	Notes	Project Feature/Equivalent	Project Reduction		Equivalent Best Performance Standard?
						Low End	High End	
MM D-5	Street Grid	1%	Multiple and direct street routing (grid style). This measure only applies to projects with an internal CF >/= 0.80, and average of one-quarter mile or less between external connections along perimeter of project. [CF= # of intersections / (# of cul-de-sacs + intersections)]. Cul-de-sacs with bicycle/pedestrian through access may be considered "complete intersections" when calculating the project's internal connectivity factor. External connections are bike/pedestrian pathways and access points, or streets with safe and convenient bicycle and pedestrian access that connect the project to adjacent streets, sidewalks, and uses. If project site is adjacent to undeveloped land; streets, pathways, access points, and right-of-ways that provide for future access to adjacent uses may count for up to 50% of the external connections. Block perimeter (the sum of the measurement of the length of all block sides) is limited to no more than 1,350 feet. Streets internal to the project should connect to streets external to the project whenever possible.					
MM D-6	NEV Access	0.5-1.5%	Make physical development consistent with requirements for neighborhood electric vehicles. Current studies show that for most trips, NEVs do not replace gas-fueled vehicles as the primary vehicle.					
MM D-7	Affordable Housing Component	0.4-6%	Residential development projects of five or more dwelling units provide a deed restricted low-income housing component on-site (or as defined in the code). Developers who pay into In-Lieu Fee Programs are not considered eligible to receive credit for this measure. The award of emission reduction credit shall be based only on the proportion of affordable housing developed on-site because in-lieu programs simply induce a net increase in development. Percentage reduction shall be calculated according to the following formula: % reduction = % units deedrestricted below market rate housing * 0.04					
MM D-8	Recharging Area	n/a, low	Provide residential buildings with a "utility" room or space for recharging batteries, whether for use in a car, electric lawnmower, other electric landscaping equipment, or even batteries for small items such as flashlights.					N
MM D-9	Urban Mixed-Use	3-9%	Development of projects predominantly characterized by properties on which various uses, such as office, commercial, institutional, and residential, are combined in a single building or on a single site in an integrated development project with functional interrelationships and a coherent physical design.					
MM D-10	Suburban Mixed-use	3%	Have at least three of the following on site and/or offsite within one-quarter mile: Residential Development, Retail Development, Park, Open Space, or Office.					
MM D-11	Other Mixed-Use	1%	All residential units are within one-quarter mile of parks, schools or other civic uses.					
MM D-12	Infill Development	3-30%	Project site is on a vacant infill site, redevelopment area, or brownfield or greyfield lot that is highly accessible to regional destinations, where the destinations rating of the development site (measured as the weighted average travel time to all other regional destinations) is improved by 100% when compared to an alternate greenfield site.					N
MM D-13	Electric Lawnmower	1%	Provide a complimentary electric lawnmower to each residential buyer.					
MM D-14	Enhanced Recycling/Waste Reduction, Reuse, Composting	n/a, low	Provide infrastructure/education that promotes the avoidance of products with excessive packaging, recycle, buying of refills, separating of food and yard waste for composting, and using rechargeable batteries.					N
MM D-15	LEED Certification	n/a, moderate	LEED promotes a wholebuilding approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.					N
MM D-16	Retro-Commissioning	8-10% (energy usage)	The process ensures that all building systems perform interactively according to the contract documents, the design intent and the owner's operational needs to optimize energy performance.					N

CAPCOA GHG Reduction Measures								
Measure	Name	Recommended Reduction	Description	Notes	Project Feature/Equivalent	Project Reduction		Equivalent Best Performance Standard?
						Low End	High End	
MM D-17	Landscaping	n/a, low	Project shall use drought resistant native trees, trees with low emissions and high carbon sequestration potential. Evergreen trees on the north and west sides afford the best protection from the setting summer sun and cold winter winds. Additional considerations include the use of deciduous trees on the south side of the house that will admit summer sun; evergreen plantings on the north side will slow cold winter winds; constructing a natural planted channel to funnel summer cooling breezes into the house. Neighborhood CCR's not requiring that front and side yards of single family homes be planted with turf grass. Vegetable gardens, bunch grass, and low-water landscaping shall also be permitted, or even encouraged.					N
MM D-18	Local Farmer's Market	n/a, low	Project shall dedicate space in a centralized, accessible location for a weekly farmers' market.					N
MM D-19	Community Gardens	n/a, low	Project shall dedicate space for community gardens.					N
MM E-1	High-Efficiency Pumps	n/a, low	Project shall use high-efficiency pumps.					N
MM E-2	Wood Burning Fireplaces/Stoves	n/a, low	Project does not feature fireplaces or wood burning stoves.					N
MM E-3	Natural Gas Stove	n/a, low	Project features only natural gas or electric stoves in residences.					N
MM E-4	Energy Star Roof	0.5-1%	Project installs Energy Star labeled roof materials.					
MM E-5	On-site Renewable Energy System	1-3%	Project provides onsite renewable energy system(s). Nonpolluting and renewable energy potential includes solar, wind, geothermal, low-impact hydro, biomass and bio-gas strategies. When applying these strategies, projects may take advantage of net metering with the local utility.					
MM E-6	Exceed Title 24	1%	Project exceeds title 24 requirements by 20%.					
MM E-7	Solar Orientation	1%	Project orients 75 percent or more of homes and/or buildings to face either north or south (within 30° of N/S). Building design includes roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows. Trees, other landscaping features and other buildings are sited in such a way as to maximize shade in the summer and maximize solar access to walls and windows in the winter.					
MM E-8	Nonroof Surfaces	1%	Provide shade (within 5 years) and/or use light-colored/highalbedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's nonroof impervious surfaces, including parking lots, walkways, plazas, etc.; OR place a minimum of 50% of parking spaces underground or covered by structured parking; OR use an open-grid pavement system (less than 50% impervious) for a minimum of 50% of the parking lot area. The mitigation measure reduces heat islands (thermal gradient differences between developed and undeveloped areas to minimize impact on microclimate and human and wildlife habitats. This measure requires the use of patented or copyright protected methodologies created by the ATSM.					
MM E-9	Low Energy Cooling	1-10%	Project optimizes building's thermal distribution by separating ventilation and thermal conditioning systems.					N
MM E-10	Green Roof	1%	Install a vegetated roof that covers at least 50% of roof area. The reduction assumes that a vegetated roof is installed on a least 50% of the roof area or that a combination high albedo and vegetated roof surface is installed that meets the following standard: (Area of SRI Roof/0.75) + (Area of vegetated roof/0.5) >= Total Roof Area. Water consumption reduction measures shall be considered in the design of the green roof.					
MM E-11	EV Charging Facilities	n/a, low	Project installs EV charging facilities.					N
MM E-12	Light Colored Paving	n/a, low	Project provides light-colored paving (e.g., increased albedo pavement).					N
MM E-13	Cool Roofs	n/a, low	Project provides cool roofs. Highly reflective, highly emissive roofing materials that stay 50-60°F cooler than a normal roof under a hot summer sun. CA's Cool Savings Program provided rebates to building owners for installing roofing materials with high solar reflectance and thermal emittance.					N
MM E-14	Solar Water Heaters	20-70% (energy)	Project provides solar water heaters.					N
MM E-15	Electric Yard Equipment Compatibility	n/a, low	Project provides electrical outlets at building exterior areas.					N
MM E-16	Energy Efficient Appliance Standards	n/a, low	Project uses energy efficient appliances (e.g., Energy Star).					N
MM E-17	Green Building Materials	n/a, low	Project uses materials which are resource efficient, recycled, with long life cycles and manufactured in an environmentally friendly way.					N
MM E-18	Shading Mechanisms	n/a, low	Install energy-reducing shading mechanisms for windows, porch, patio and walkway overhangs.					N
MM E-19	Ceiling/Whole House Fans	n/a, low	Install energy-reducing ceiling/whole-house fans.					N

Measure #	Measure Name	Compliance			Measure Description	Estimated CO2 Equivalent Point/Percentage Reduction	Achieved? (Enter Percentage from Previous Column)	Notes
		C	M	R				
Bicycle/Pedestrian Transit Measures								
1	Bike Parking	x	x		Non-residential projects provide plentiful short-term and long-term bicycle parking facilities to meet peak season maximum demand. Short-term facilities are provided at a minimum ratio of one bike rack space per 20 vehicle spaces. Long-term facilities provide a minimum ratio of one long-term bicycle storage space per 20 employee parking spaces.	0.625%	0.63%	Equivalent measure to MM T-1 of CAPCOA but with lesser estimated reduction
2	End of trip facilities	x	x		Non-residential projects provide "end-of-trip" facilities including showers, lockers, and changing space. Facilities shall be provided in the following ratio: four clothes lockers and one shower provided for every 80 employees parking spaces. For projects with 160 or more employee parking spaces, separate facilities are required for each gender.	0.625%	0.63%	Equivalent measure to MM T-2 of CAPCOA but with lesser estimated reduction
3	Bike parking at multi-unit residential	x			Long-term bicycle parking is provided at apartment complexes or condominiums without garages. Project provides one long-term bicycle parking space for each unit without a garage. Long-term facilities shall consist of one of the following: a bicycle locker, a locked room with standard racks and access limited to bicyclists only, or a standard rack in a location that is staffed and/or monitored by video surveillance 24 hours per day.	0.625%	0.63%	Equivalent measure to MM T-3 of CAPCOA
4	Proximity to bike path/bike lanes	x	x	x	Entire project is located within 1/2 mile of an existing Class I or Class II bike lane and project design includes a comparable network that connects the project uses to the existing offsite facility. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the project's occupancy permits being granted. Project design includes a designated bicycle route connecting all units, on-site bicycle parking facilities, offsite bicycle facilities, site entrances, and primary building entrances to existing Class I or Class II bike lane(s) within 1/2 mile. Bicycle route connects to all streets contiguous with the project site. Bicycle route has minimum conflicts with automobile parking and circulation facilities. All streets internal to the project wider than 75 feet have class II bicycle lanes on both sides.	0.625%		Equivalent measure to MM T-4 of CAPCOA
5	Pedestrian network	x	x	x	The project provides a pedestrian access network that internally links all uses and connects to existing external streets and pedestrian facilities. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the project's occupancy permits being granted.	1.000%		Portions of MM T-5 of CAPCOA
	5a Pedestrian network	x	x	x	The project provides a pedestrian access network that internally links all uses for connecting to planned external streets and pedestrian facilities (facilities must include pedestrian master plan or equivalent)	0.500%	0.50%	Portions of MM T-5 of CAPCOA
6	Pedestrian barriers minimized	x	x	x	Site design and building placement minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between residential and non-residential uses that impede bicycle or pedestrian circulation are eliminated. Barriers to pedestrian access of neighboring facilities and sites are minimized. This measure is not meant to prevent the limited use of barriers to ensure public safety by prohibiting access to hazardous areas, etc...	1.000%		Portions of MM T-6 of CAPCOA but with lesser estimated reduction
7	Bus shelter for existing transit service	x	x	x	Bus or Streetcar service provides headways of one hour or less for stops within 1/4 mile; project provides safe and convenient bicycle/pedestrian access to transit stop(s) and provides essential transit stop improvements (i.e., shelters, route information, benches, and lighting).	0.500%		Equivalent measure to MM T-7 of CAPCOA but with lesser estimated reduction
8	Bus shelter for planned transit service	x	x	x	Project provides transit stops with safe and convenient bicycle/pedestrian access. Project provides essential transit stop improvements (i.e., shelters, route information, benches, and lighting) in anticipation of future transit service. If measure 7 is selected, it excludes this measure.	0.250%		Equivalent measure to MM T-7 of CAPCOA but with lesser estimated reduction
9	Traffic calming	x	x	x	Project design includes pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements. Roadways are designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips by featuring traffic calming measures. Traffic calming measures include: bike lanes, center islands, closures (cul-de-sacs), diverters, education, forced turn lanes, roundabouts, speed humps, etc...			Equivalent measure to MM T-8 of CAPCOA but with lesser estimated reduction
Parking Measures								
10	Paid parking	x	x	x	Employee and/or customer paid parking system			Refined measure from MM T-9 of CAPCOA but with lesser reduction
	10a Paid parking - Urban site within 1/4 mile from transit stop	x	x	x	Employee and/or customer paid parking system. Daily charge for parking must be equal to or greater than the cost of a local transit pass + 20%. Monthly charge for parking must be equal to or greater than the cost of a local monthly transit pass, plus 20%.	5.000%		

Measure #	Measure Name	C o m m u n i t y U s e I			Measure Description	Estimated CO2 Equivalent Point/Percentage Reduction	Achieved? (Enter Percentage from Previous Column)	Notes
		R	M	I				
					Employee and/or customer paid parking system. Daily charge for parking must be equal to or greater than the cost of a local transit pass + 20%. Monthly charge for parking must be equal to or greater than the cost of a local monthly transit pass, plus 20%.	1.500%		
10b	Paid parking - Urban site greater than 1/4 mile from transit stop	x	x	x	Employee and/or customer paid parking system. Daily charge for parking must be equal to or greater than the cost of a local transit pass + 20%. Monthly charge for parking must be equal to or greater than the cost of a local monthly transit pass, plus 20%.	2.000%		
10c	Paid parking - Suburban site within 1/4 mile of transit stop	x	x	x	Employee and/or customer paid parking system. Daily charge for parking must be equal to or greater than the cost of a local transit pass + 20%. Monthly charge for parking must be equal to or greater than the cost of a local monthly transit pass, plus 20%.	1.000%		
10d	Paid parking - Suburban site greater than 1/4 mile of transit stop	x	x	x	Employee and/or customer paid parking system. Daily charge for parking must be equal to or greater than the cost of a local transit pass + 20%. Monthly charge for parking must be equal to or greater than the cost of a local monthly transit pass, plus 20%.	0.600%		
10e	Parking cash out				Employer provides employees with a choice of forgoing subsidized parking for a cash payment equivalent to the cost of the parking space to the employer.			
11	Minimum parking	x	x	x	Provide minimum amount of parking required. Special review of parking required. If zoning codes in the San Joaquin Valley area have provisions that allow a project to build less than the typically mandated amount of parking if the development features design elements that reduce the need for automobile use. This measure recognizes the air quality benefit that results when facilities minimize parking needs, and grants mitigation value to project that implement all available parking reductions. Once land uses are determined, the trip reduction factor associated with this measure can be determined by utilizing the Institute of Transportation Engineers (ITE) Parking generation publication. The reduction in trips can be computed as shown below by the ratio of the difference of minimum parking required by code and ITE peak parking demand to ITE peak parking demand for the land uses multiplied by 50%. The maximum achievable trip reduction is 6%. For projects where retail space occupies 50% or more of the total built space, do not use December specific parking generation rates (from ITE). Percent Trip Reduction = 50*[(min parking required by code - ITE peak parking demand) / (ITE peak parking demand)].	3.000%		Equivalent measure to MM T-10 of CAPCOA but with lesser reduction
12	Parking reduction beyond code	x	x	x	Provide parking reduction less than code. Special review of parking required. Recommend a Shared Parking strategy. Trip reductions associated with parking reductions beyond code shall be computed in the same manner as described under measure 11, as the same methodology applies. The maximum achievable trip reduction is 12%. This measure can be readily implemented through a Shared Parking strategy, wherein parking is utilized jointly among different land uses, buildings, and facilities in an area that experience peak parking needs at different times of day and day of the week. For example, residential uses and/or restaurant/retail uses, which experience peak parking demand during the evening/night and on the weekends, arrange to share parking facilities with office and/or educational uses, which experience peak demand during business hours and during the week.	6.000%		Equivalent measure to MM T-11 of CAPCOA but with lesser reduction
13	Pedestrian pathway through parking	x	x	x	Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances. Pathway must connect to all transit facilities internal or adjacent to project site. Site plan should demonstrate how the pathways are clearly marked, shaded, and are placed between transit facilities and building entrances.	0.500%		Equivalent measure to MM T-12 of CAPCOA but with lesser reduction
14	Off-street parking	x	x	x	Parking facilities are not adjacent to street frontage			Equivalent measure to MM T-13 of CAPCOA but with lesser reduction
14a	Off-street parking	x	x	x	For 1.5% reduction, parking facilities shall not be sited adjacent to public roads contiguous with project site. Functioning pedestrian entrances to major site uses are located along street frontage. Parking facilities do not restrict pedestrian, bicycle, or transit access from adjoining uses. Proponent shall provide information demonstrating compliance with measure requirements including, but not limited to, a description of where parking is located relative to the buildings on the site, site plans, maps, or other graphics, which demonstrate the placement of parking facilities behind on-site buildings relative to streets contiguous with the project site. Surrounding uses should be high density or mixed-use, there shall be other adjoining pedestrian and bicycle connections, such as wide sidewalks and bike lanes, and surrounding uses shall also implement measure 15.	1.500%		

Measure #	Measure Name	Compliance			Measure Description	Estimated CO2 Equivalent Point/Percentage Reduction	Achieved? (Enter Percentage from Previous Column)	Notes
		R	M	I				
					For 1.0% reduction, (parking structures only) proponent must show that parking facilities that face street frontage feature ground floor retail along street frontage. Proponent shall provide information demonstrating compliance with measure requirements including, but not limited to, a written description of the parking facility and the amount of retail space on the ground floor, site plans, maps, or other graphics demonstrating the placement of retail/commercial space along all street fronts contiguous with parking structure.	1.000%		
14b	Off-street parking	x	x	x	For 0.1% reduction, the project is not among high-density or mixed uses, is not connected to pedestrian or bicycle access ways, or is among uses that do not also hide parking. This point value is reflective of the importance that other pedestrian and density measures be in place in order for this measure to be effective.	0.100%		
14c	Off-street parking	x	x	x				
Site Design Measures								
15	Office/Mixed-Use proximate to transit	x	x		Mitigation value is based on project density and proximity to transit. Planned transit must be in MTP or RT Master Plan. To count as "existing transit" service must be fully operational prior to the first 20% of the projects occupancy permits being granted. Project must provide safe and convenient pedestrian and bicycle access to all transit stops within 1/4 mile. Proponent shall provide information demonstrating compliance with measure requirements including, but not limited to, a written description of how the project complies with the measure, a map or graphic depicting the location of the project in relation to the transit stop. Graphic should demonstrate a 1/4 mile radius, arc, from transit and planned pathways and linkages to the transit stop. Proponent shall also provide graphics depicting the size and layout of the building as well as the calculations demonstrating the FAR (floor to area ratio).			Equivalent measure to MM D-1 of CAPCOA but with lesser reduction
15a	Office/Mixed-Use proximate to Planned Light Rail Transit	x	x		0.75-1.5 FAR (Floor to Area Ratio)	0.400%		
		x	x		1.5-2.25 FAR	0.500%		
		x	x		2.25 or greater FAR	0.750%		
15b	Office/Mixed Use Proximate to Planned Bus Rapid Transit	x	x		0.75-1.5 FAR (Floor to Area Ratio)	0.200%		
		x	x		1.5-2.25 FAR	0.250%		
		x	x		2.25 or greater FAR	0.300%		
15c	Office/Mixed Use proximate to Existing Light Rail Transit	x	x		0.75-1.5 FAR (Floor to Area Ratio)	0.750%		
		x	x		1.5-2.25 FAR	1.000%		
		x	x		2.25 or greater FAR	1.500%		
15d	Office/Mixed Use proximate to Existing Bus Rapid Transit	x	x		0.75-1.5 FAR (Floor to Area Ratio)	0.400%		
		x	x		1.5-2.25 FAR	0.500%		
		x	x		2.25 or greater FAR	0.750%		
16	Orientation toward existing transit, bikeway, or pedestrian corridor	x	x	x	Project is oriented towards existing transit, bicycle, or pedestrian corridor. Setback distance is minimized. Setback distance between project and adjacent uses is reduced to the minimum allowed under jurisdiction code. Setback distance between different buildings on project site is reduced to the minimum allowed under jurisdiction code. Setbacks between project buildings and sidewalks is reduced to the minimum allowed under jurisdiction code. Buildings are oriented towards street frontage. Primary entrances to buildings are located along public street frontage. Project provides bicycle access to existing bicycle corridor. Project provides access to existing pedestrian corridor. (cannot get points for boht this measure and measure 17)	0.500%		Equivalent measure to MM D-2 of CAPCOA but with lesser reduction
17	Orientation toward planned transit, bikeway, or pedestrian corridor	x	x		Project is oriented towards planned transit, bicycle, or pedestrian corridor. Setback distance is minimized. Planned transit, bicycle or pedestrian corridor must be in the MTP, RT Master Plan, General Plan, or Community Plan. Setback distance between project and existing or planned adjacent uses is minimized or non-existent. Setback distance between different buildings on project site is minimized. Setbacks between project buildings and planned or existing sidewalks are minimized. Buildings are oriented towards existing or planned street frontage. Primary entrances to buildings are located along planned or existing public street frontage. Project provides bicycle access to any planned bicycle corridor(s). Project provides pedestrian access to any planned pedestrian corridor(s).	0.250%		Equivalent measure to MM D-2 of CAPCOA but with lesser reduction
18	Residential density with no transit	x			Project provides high-density residential development. Mitigation value is based on project density with no transit . Density is calculated by determining the number of units per acre ("du/acre") within the residential portion of the project's net lot area.			Equivalent measure to MM D-4 of CAPCOA but with lesser reduction

Measure #	Measure Name	C o m m u n i t y			Measure Description	Estimated CO2 Equivalent Point/Percentage Reduction	Achieved? (Enter Percentage from Previous Column)	Notes
		C	M	I				
	3-6 du/acre			X		0.000%		
	7-10 du/acre			X		1.000%	1.00%	
	11-20 du/acre			X		3.000%		
	21-30 du/acre			X		5.000%		
	31-40 du/acre			X		6.000%		
	41-50 du/acre			X		8.000%		
	50+ du/acre			X		10.000%		
	Project provides high-density residential development. Mitigation value is based on project density and proximity to planned light rail transit . Density is calculated by determining the number of units per acre ("du/acre") within the residential portion of the project's net lot area. Transit facilities must be within 1/4 mile of project border. Project provides safe and convenient bicycle/pedestrian access to all transit stop(s) within 1/4 mile of project border. Planned transit must be in a MTP or RT Master Plan.							
18a	Residential density with planned light rail transit							
	3-6 du/acre			X		0.000%		
	7-10 du/acre			X		1.750%		
	11-20 du/acre			X		3.750%		
	21-30 du/acre			X		5.750%		
	31-40 du/acre			X		6.750%		
	41-50 du/acre			X		8.750%		
	50+ du/acre			X		10.750%		
	Project provides high-density residential development. Mitigation value is based on project density and proximity to planned bus rapid transit . Density is calculated by determining the number of units per acre ("du/acre") within the residential portion of the project's net lot area. Transit facilities must be within 1/4 mile of project border. Project provides safe and convenient bicycle/pedestrian access to all transit stop(s) within 1/4 mile of project border. Planned transit must be in a MTP or RT Master Plan.							
18b	Residential density with planned bus rapid transit							
	3-6 du/acre			X		0.000%		
	7-10 du/acre			X		1.250%		
	11-20 du/acre			X		3.250%		
	21-30 du/acre			X		5.250%		
	31-40 du/acre			X		6.250%		
	41-50 du/acre			X		8.250%		
	50+ du/acre			X		10.250%		
	Project provides high-density residential development. Mitigation value is based on project density and proximity to existing light rail transit . Density is calculated by determining the number of units per acre ("du/acre") within the residential portion of the project's net lot area. Existing transit facilities must be within 1/4 mile of project border. Project provides safe and convenient bicycle/pedestrian access to all transit stop(s) within 1/4 mile of project border.							
18c	Residential density with existing light rail transit							
	3-6 du/acre			X		0.000%		
	7-10 du/acre			X		2.500%		
	11-20 du/acre			X		4.500%		
	21-30 du/acre			X		6.500%		
	31-40 du/acre			X		7.500%		
	41-50 du/acre			X		9.500%		
	50+ du/acre			X		11.500%		
	Project provides high-density residential development. Mitigation value is based on project density and proximity to existing bus rapid transit . Density is calculated by determining the number of units per acre ("du/acre") within the residential portion of the project's net lot area. Existing transit facilities must be within 1/4 mile of project border. Project provides safe and convenient bicycle/pedestrian access to all transit stop(s) within 1/4 mile of project border.							
18d	Residential density with existing bus rapid transit							
	3-6 du/acre			X		0.000%		
	7-10 du/acre			X		2.000%		
	11-20 du/acre			X		4.000%		
	21-30 du/acre			X		6.000%		
	31-40 du/acre			X		7.000%		
	41-50 du/acre			X		9.000%		
	50+ du/acre			X		11.000%		
19	Street grid	X	X	X	Multiple and direct street routing (grid style). The measure applies to projects with an internal connectivity factor (CF)>=0.80, and average of 1/4 mile or less between external connections along perimeter of project. [CF=# of intersections / (# of cul-de-sacs + intersections)]	1.000%		Equivalent measure to MM D-5 of CAPCOA
20	Neighborhood electric vehicle access	X	X	X	Make physical development consistent with requirements for neighborhood electric vehicles (NEV). Current studies show that for most trips, NEVs do not replace gas-fueled vehicles as the primary vehicle. For the purpose of providing incentives for developers to promote NEV use, assume the percent reductions noted below.			Equivalent measure to MM D-6 of CAPCOA
20a	Neighborhood electric vehicle access	X	X	X	For 1.5% reduction, a neighborhood shall have internal NEV connections and connections to other existing NEV networks serving all other types of uses.	1.500%		

Measure #	Measure Name	Compliance			Measure Description	Estimated CO2 Equivalent Point/Percentage Reduction	Achieved? (Enter Percentage from Previous Column)	Notes
		C	M	R				
20b	Neighborhood electric vehicle access	x	x	x	For 1.0% reduction, a neighborhood shall have internal and external connections to surrounding neighborhoods.	1.000%		
20c	Neighborhood electric vehicle access	x	x	x	For 0.5% reduction, a neighborhood has internal connections only.	0.500%		
21	Affordable Housing Component			x	Residential development projects of 5 or more dwelling units provide a deed-restricted low-income housing component on-site (as defined in Ch 22.35 of Sacramento County Ordinance Code) [Developers who pay into In-Lieu Fee Programs are not considered eligible to receive credit for this measure]. Percent reductions shall be calculated according to the following formula: % reduction=% units deed-restricted below the market rate housing *0.04			Equivalent measure to MM D-7 of CAPCOA but with lesser reduction
21a	Affordable Housing Component			x	Reductions apply if 15% of units are deed-restricted below the market housing rate.	0.600%		
21b	Affordable Housing Component			x	Reductions apply if 20% of units are deed-restricted below the market housing rate.	0.800%		
21c	Affordable Housing Component			x	Reductions apply if 30% of units are deed-restricted below the market housing rate.	1.200%		
21d	Affordable Housing Component			x	Reductions apply if 40% of units are deed-restricted below the market housing rate.	1.600%		
21e	Affordable Housing Component			x	Reductions apply if 50% of units are deed-restricted below the market housing rate.	2.000%		
21f	Affordable Housing Component			x	Reductions apply if 60% of units are deed-restricted below the market housing rate.	2.400%		
21g	Affordable Housing Component			x	Reductions apply if 70% of units are deed-restricted below the market housing rate.	2.800%		
21h	Affordable Housing Component			x	Reductions apply if 80% of units are deed-restricted below the market housing rate.	3.200%		
21i	Affordable Housing Component			x	Reductions apply if 90% of units are deed-restricted below the market housing rate.	3.600%		
21j	Affordable Housing Component			x	Reductions apply if 100% of units are deed-restricted below the market housing rate.	4.000%		
Mixed-Use Measures								
22	Urban Mixed-Use Measure			x	Development of projects predominantly characterized by properties on which various uses, such as office, commercial, institutional, and residential are combined in a single building or on a single site in an integrated development project with functional inter-relationships and a coherent physical design.			Equivalent measure to MM D-9 of CAPCOA
22a	Urban Mixed-Use Measure			x	Mitigation points for this measure depend on job to housing ratio.	3.000%		
22b	Urban Mixed-Use Measure			x	Reductions apply if the ratio (jobs:houses) is $\geq 1 < 1.0$	6.600%		
22c	Urban Mixed-Use Measure			x	Reductions apply if the ratio (jobs:houses) is $\geq 1.5 < 2.0$	9.000%		
22d	Urban Mixed-Use Measure			x	Reductions apply if the ratio (jobs:houses) is $\geq 2.0 < 2.5$	7.290%		
22e	Urban Mixed-Use Measure			x	Reductions apply if the ratio (jobs:houses) is $\geq 2.5 < 3.0$	6.000%		
22f	Urban Mixed-Use Measure			x	Reductions apply if the ratio (jobs:houses) is $\geq 3.0 < 3.5$	5.000%		
22g	Urban Mixed-Use Measure			x	Reductions apply if the ratio (jobs:houses) is $\geq 3.5 \leq 4.0$	4.200%		
23	Suburban mixed-use	x	x	x	Have at least three of the following on site and/or offsite within ¼ mile: Residential Development, Retail Development, Park, Open Space, or Office.	3.000%	3.00%	Equivalent measure to MM D-10 of CAPCOA
24	Other mixed-use			x	All residential units are within ¼ mile of parks, schools or other civic uses.	1.000%	1.00%	Equivalent measure to MM D-11 of CAPCOA
Building Component Measures								
26	Ozone destruction catalyst	x	x	x	Install ozone destruction catalyst on air conditioning systems. Points are given if installed on all air conditioning units.	1.250%		Not a CAPCOA Measure
27	Energy star roof	x	x	x	Install Energy Star labeled roof materials. Energy star qualified roof products reflect more of the sun's rays, decreasing the amount of heat transferred into a building.	0.500%		Equivalent measure to MM E-4 of CAPCOA
28	Onsite renewable energy system	x	x	x	Project provides onsite renewable energy system(s)	1.000%		Equivalent measure to MM E-5 of CAPCOA but with lesser reduction
29	Exceed title 24	x	x	x	Project Exceeds title 24 requirements by 20%	1.000%	1.00%	Equivalent measure to MM E-6 of CAPCOA
30	Solar orientation	x	x	x	Orient 75 or more percent of homes and/or buildings to face either north or south (within 30 degrees of North or South). Building design includes roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows. Trees, other landscaping features and other buildings are sited in such a way as to maximize shade in the summer and maximize solar access to walls and windows in the winter.	0.500%		Equivalent measure to MM E-7 of CAPCOA but with lesser reduction
31	Non-roof surfaces	x	x	x	Provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's non-roof impervious surfaces, including parking lots, walkways, plazas, etc.; OR place a minimum of 50% of parking spaces underground or covered by structured parking; OR use an open-grid pavement system (less than 50% impervious) for a minimum of 50% of the parking lot area. Unshaded parking lot areas, driveways, fire lanes, and other paved areas have a minimum albedo of .3 or greater	1.000%		Equivalent measure to MM E-8 of CAPCOA

Measure #	Measure Name	Compliance			Measure Description	Estimated CO2 Equivalent Point/Percentage Reduction	Achieved? (Enter Percentage from Previous Column)	Notes
		C	M	R				
32	Green roof	x	x	x	Install a vegetated roof that covers at least 50% of roof area. Project should demonstrate detailed graphics depicting the planned roof, detailed information on maintenance requirements for the roof, and the facilities plan for maintaining the roof post construction.	0.500%		Equivalent measure to MM E-10 of CAPCOA but with lesser reduction
TDM and Misc Measures								
34	Electric lawnmower	x	x	x	Provide a complimentary electric lawnmower to each residential buyer	1.000%		Equivalent measure to MM D-13

8.38% reduction
or
8.38 points*

* SJVAPCD Target = 29 points

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	CO2
Single family housing	21,454.98
Apartments low rise	5,235.09
Condo/townhouse general	6,398.45
Regnl shop. center	38,094.98
Strip mall	5,016.71
Office park	3,257.06
Warehouse	11,368.05
General light industry	8,664.92
Mixed Use Shopping Center	19,177.91
Mixed Use Office Park	1,749.96
Mini-Storage	547.64
EXPO - Community Center	806.71
TOTALS (tons/year, unmitigated)	121,772.46

Operational Settings:

Does not include correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 41.36 Nonresidential Trip % Reduction: 18.69

Analysis Year: 2020 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	300.00	5.61	dwelling units	2,358.00	13,233.15	113,139.44
Apartments low rise	20.00	3.90	dwelling units	828.00	3,228.94	27,606.43
Condo/townhouse general	149.90	3.90	dwelling units	1,012.00	3,946.48	33,741.19
Regnl shop. center		23.30	1000 sq ft	1,178.00	27,442.36	202,881.40
Strip mall		5.94	1000 sq ft	608.00	3,613.87	26,717.34
Office park		10.12	1000 sq ft	203.00	2,053.37	17,211.38
Warehouse		1.90	1000 sq ft	4,304.00	8,189.17	60,542.51
General light industry		6.73	1000 sq ft	807.00	5,433.20	45,774.69
Mixed Use Shopping Center		33.70	1000 sq ft	410.00	13,815.14	102,135.31
Mixed Use Office Park		12.12	1000 sq ft	91.00	1,103.24	9,247.37
Mini-Storage		1.94	1000 sq ft	203.00	394.50	2,916.53
EXPO - Community Center		4.75	1000 sq ft	122.00	579.33	4,295.43
					83,032.75	646,209.02

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	42.5	0.0	100.0	0.0
Light Truck < 3750 lbs	12.0	0.0	97.5	2.5
Light Truck 3751-5750 lbs	21.2	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	44.4	55.6

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	2.6	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	3.9	41.0	59.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Regnl shop. center	2.0	1.0	97.0
Strip mall	2.0	1.0	97.0
Office park	48.0	24.0	28.0
Warehouse	2.0	1.0	97.0
General light industry	50.0	25.0	25.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Mixed Use Shopping Center				2.0	1.0	97.0
Mixed Use Office Park				48.0	24.0	28.0
Mini-Storage				2.0	1.0	97.0
EXPO - Community Center				3.0	1.5	95.5