

Appendix C Greenhouse Gas Emissions Data

Assumptions and Calculations

**San Pedro NCP
Greenhouse Gas Emission Worksheet
Project Summary**

Project:	San Pedro NCP
Project Number:	100018607

Project Totals	Total	Percent of total
Construction		
Vehicle and Equipment Use	- metric tons CO ₂	#DIV/0!
Construction Waste	- metric tons CO ₂	#DIV/0!
Total	- metric tons CO₂	#DIV/0!

Existing Emissions			
Amitorized Construction	-	metric tons CO ₂ e	0.0%
Vehicular Use	107,427	metric tons CO ₂ e	35.9%
Electricity	94,801	metric tons CO ₂ e	31.6%
Natural Gas & other fuels	74,225	metric tons CO ₂ e	24.8%
Solid Waste	6,737	metric tons CO ₂ e	2.2%
Water Use	16,403	metric tons CO ₂ e	5.5%
Total	299,593	metric tons CO₂e	100.0%

Unmitigated Growth Operation			
Amitorized Construction	-	metric tons CO ₂ e	0.0%
Vehicular Use	22,193	metric tons CO ₂ e	32.2%
Electricity	16,082	metric tons CO ₂ e	23.3%
Natural Gas & other fuels	28,332	metric tons CO ₂ e	41.1%
Solid Waste	2,117	metric tons CO ₂ e	3.1%
Water Use	238	metric tons CO ₂ e	0.3%
Total	68,962	metric tons CO₂e	100.0%

Is Mitigation Required? Yes

Mitigated Growth Operation				% Reduction
Amitorized Construction	-	metric tons CO ₂ e	0.0%	0.00%
Vehicular Use	11,860	metric tons CO ₂ e	27.2%	46.56%
Electricity	8,569	metric tons CO ₂ e	19.6%	46.72%
Natural Gas & other fuels	21,964	metric tons CO ₂ e	50.3%	22.47%
Solid Waste	1,058	metric tons CO ₂ e	2.4%	50.00%
Water Use	190	metric tons CO ₂ e	0.4%	20.00%
Total	43,643	metric tons CO₂e	100.0%	36.71%

**San Pedro NCP
Greenhouse Gas Emission Worksheet
Modeling Assumptions**

Standard Conversions and Emission Factors

	CO ₂	CH ₄	N ₂ O	Not Gas Dependent
lbs/short ton ¹	-	-	-	2000
lbs/metric ton ¹	-	-	-	2204.62
g/metric ton ¹	-	-	-	1,000,000
metric tons/short ton ¹	-	-	-	0.907185
kW/MW ¹	-	-	-	1,000
kWh/Mg Indoor Potable water use NC ⁴	-	-	-	3500
kWh/Mg Indoor Wastewater NC ⁴	-	-	-	1911
kWh/Mg Outdoor water use NC ⁴	-	-	-	3,500
kWh/Mg Indoor water use SC ⁴	-	-	-	13,022
kWh/Mg Outdoor water use SC ⁴	-	-	-	11,111
GWP ⁵	1	21	310	-
2008+ (lbs/MWh) ⁶		0.00725	0.01078	-
2008+ (lbs/MWh) ⁷	641	-	-	-
lbs/therm ⁸	11.67	0.001	0.00002	-
Attributable percentage of lbs/therm	99.9913%	0.0086%	0.0002%	-
gr/mile for vehicle fleet ⁹	-	varies	varies	-
gasoline emission factor (lbs/gallon) ¹⁰	19.4	-	-	-
gasoline emission factor (gr/gallon) ¹¹	-	0.50	0.22	-
Burning wood (lbs/ton) ¹²	3400	82.44	0.3	-
MT/ton (solid waste) ¹³	0	0.07	0	-
gr/mile ⁹	-	0.0051	0.0048	-
gr/mile	3464.16382	-	-	-
kg/gallon ¹⁴	10.15	-	-	-
miles/gallon ¹⁵	2.93	-	-	-
Residential (waste tons/cuyd) ¹⁶	-	-	-	0.1125
Commercial/industrial (waste tons/cuyd) ¹⁶	-	-	-	0.225
Truck capacity (cy/truck) ¹⁷	-	-	-	33
Miles/trip ¹⁹	-	-	-	24.15

**San Pedro NCP
Greenhouse Gas Emission Worksheet
Modeling Assumptions**

General Assumptions

	Existing	2030	Growth
Residential Units ²¹	24,969	34,730	9,761
SF residential	8,863	9,753	890
MF residential	16,106	24,977	8,871
Residential Units (ksf) ²¹	37,215	38,266	1,050
Commercial Sq footage (ksf) ²¹	5,203	3,412	-1,790
Industrial sq footage (ksf) ²¹	2,880	5,853	2,973
Open/Public (kfs) ²¹	394	2,710	2,316
Growth is X% of 2030 total:	-	-	20.11%
Residential is X% of total square feet	81.45%	76.16%	
population ²¹	82,112	83,354	1,242
employment ²¹	13,307	19,159	5,852
commercial employment	14,295	11,810	-2,485
Industrial employment	3,575	7,265	3,690
Electricity Consumption Rate ²²			
Residential (kWh/dwelling unit/year)	5,626.50	5,626.50	5,627
Residential (kWh/year)	140,488,079	195,408,345	54,920,267
Commercial (kWh/sq ft/yr)	27.44	27.44	27.44
Commercial (kWh/yr)	153,556,380	167,986,281	14,430
Industrial (kWh/sq ft/yr)	10.50	10.50	10.50
Industrial (kWh/yr)	30,239,685	61,457,414	31,218
Solid Waste Generation Rate ²³			
Residential (lbs/day/per dwelling unit)	12.23	12.23	12.23
Residential waste (lbs/day)	305,371	424,748	119,377
Commercial (lbs/day/per employee)	10.53	10.53	11
commercial waste (lbs/day)	150,521	124,359	(26,162)
Industrial (lbs/day/per employee)	8.93	8.93	8.93
industrial waste (lbs/day)	31,922	64,876	32,954
Water Consumption Rates ²⁴			
per capita (gpd/per person)	146	140	140
Water consumption (gpd)	11,988,352	11,669,560	173,880
Waste Water Generation Rates ²⁴			
per capita (gpd/per person)	131	126	126
Water consumption (gpd)	10,789,517	10,502,604	156,492

San Pedro NCP Greenhouse Gas Emission Worksheet Modeling Assumptions

URBEMIS Assumptions

2030 Vehicle Fleet Makeup

Fleet percentages ²⁵ Emission Factors ⁹ Vehicle Type	CO₂	CH₄	N₂O	Not Gas Dependent varies (below) varies (below)	% diesel
Light Auto	-	0.0147	0.0079	49.40%	0.00%
Light Truck < 3750 lbs	-	0.0157	0.0101	7.30%	0.00%
Light Truck 3751-5750 lbs	-	0.0157	0.0101	23.90%	0.00%
Med Truck 5751-8500 lbs	-	0.0326	0.0177	11.40%	0.00%
Lite-Heavy Truck 8501-10,000 lbs	-	0.0326	0.0177	1.80%	16.70%
Lite-Heavy Truck 10,001-14,000 lbs	-	0.0326	0.0177	0.50%	40.00%
Med-Heavy Truck 14,001-33,000 lbs	-	0.0326	0.0177	1.00%	80.00%
Heavy-Heavy Truck 33,001-60,000 lbs	-	0.0326	0.0177	0.60%	100.00%
Other Bus	-	0.0326	0.0177	0.10%	100.00%
Urban Bus	-	0.0326	0.0177	0.10%	100.00%
Motorcycle	-	0.0147	0.0079	2.70%	0.00%
School Bus	-	0.0326	0.0177	0.10%	100.00%
Motor Home	-	0.0326	0.0177	1.10%	9.10%

VMT/Trip Determination	CO₂	CH₄	N₂O	Not Gas Dependent
Existing Urbemis Daily VMT				637,307.51
Unmitigated Urbemis Daily VMT ²⁵				754,057.82
NCP Growth Urbemis Daily VMT ²⁵				116,750
Existing Urbemis Number of trips ²¹				63,054.49
Unmitigated Urbemis Daily Trips ²⁵				74,547.19
NCP Growth Urbemis Daily Trips ²⁵				11,493

Emissions determined from URBEMIS

	CO₂	CH₄	N₂O	
Non-Residential Existing Tons/year Natural Gas	14,058	-	-	-
Non-Residential Unmitigated Tons/year Natural Gas ²⁵	24,792	-	-	-
Non-Residential NCP Growth Tons/year Natural Gas ²⁵	10,734	-	-	-
Residential Existing Tons/year Natural Gas	64,679	-	-	-
Residential Unmitigated Tons/year Natural Gas ²⁵	83,694	-	-	-
Residential NCP Growth Tons/year Natural Gas ²⁵	19,015	-	-	-
Existing Landscaping emissions	123	-	-	-
Unmitigated Landscaping emissions ²⁵	134	-	-	-
NCP Growth Landscaping Emissions ²⁵	11	-	-	-
Existing tons/year Hearth	1,486	-	-	-
Unmitigated tons/year Hearth (non-NG)	2,236	-	-	-
NCP Growth tons/year hearth (non-NG) ²⁶	750	-	-	-
Existing CO ₂ from Mobile Sources	117,508	-	-	-
Unmitigated CO ₂ emissions from Mobile Sources ²⁵	139,581	-	-	-
NCP Growth CO ₂ emissions from Mobile Sources ²⁵	22,074	-	-	-

**San Pedro NCP
Greenhouse Gas Emission Worksheet
Modeling Assumptions**

References

- 4 Source: CEC: Recommended Revised Water-energy Proxies, Refining Estimates of Water-Related Energy Use in California, CEC-500-2006-118. (Table ES-1).
- 5 Source: California Climate Action Registry General Reporting Protocol, Version 3.1 January 2009 (Table C.1)
- 6 Source: USEPA Clean Energy eGrid database for 1996 CO₂ and 2005 CO₂, CH₄ and N₂O
- 7 Source: CAPCOA: Quantifying Greenhouse Gas Mitigation Measures, August 2010.
- 8 Source: California Climate Action Registry General Reporting Protocol, Version 3.1 January 2009 (Tables C.7 & C.8)
- 9 Source: California Climate Action Registry General Reporting Protocol, Version 3.1 January 2009 (Tables C.4)
- 10 Source: <http://www.epa.gov/oms/climate/420f05001.htm>
- 11 Source: California Climate Action Registry General Reporting Protocol, Version 3.1 January 2009 (Table C6; Other small utility)
- 12 Source: Environmental Protection Agency: AP-41, Vol. I, Ch. 1.9: Residential Fireplaces & Ch. 1.10: Residential Wood Stoves. October 1996.
- 13 Source: EPA Solid Waste Management and Greenhouse Gases; A life-cycle assessment of emissions and Sinks, 3rd edition, September 2006.
- 14 Source: California Climate Action Registry General Reporting Protocol, Version 3.1 January 2009 (Table C.3)
- 15 Source: Waste Management's LNG Truck Fleet: Final Results January 2001. (pg 14)
- 16 Source: EPA Standard Volume-to-Weight Conversion Factor obtained from http://www.epa.gov/osw/conserve/tools/recmeas/docs/guide_b.pdf, accessed January 18, 2010.
- 17 Source: Heil Website (<http://www.heil.com/products/python.asp>) accessed 1/18/2010 & <http://www.tigerdude.com/garbage/frontload/index.html> accessed 1/18/2010.
- 19 Source: Mapquest.com - distance from San Pedro California to 2201 E Washington Blvd. Los Angeles, CA 90021 (the location of the Central L.A. Recycling and Transfer Station).
- 20 Source: CARB Comparison of Greenhouse Gas Reductions for the United States and Canada Under U.S. CAFÉ Standards and California Air Resources Board Greenhouse Gas Regulations. Table 11. February 25, 2008.
- 21 Source: San Pedro Community Plan data, revised June 29, 2009.
- 22 Source: SCAQMD 1992. CEQA Air Quality Handbook, Table A9-11-A
Source: Note: used misc. category for industrial and average of commercial/retail categories for commercial.
Source: Connection Service Request, San Pedro New Community Plan Area. June 23, 2009.
- 23 Source: City of Los Angeles. 2006. L.A. CEQA Thresholds, pgs. M.2-22 thru M.2-26, M.3-2

Note: used "Commercial Use" for waste water generation for commercial land uses, and "Manufact or Indust" for industrial land use generation. For residential land uses, SFR used "Duplex/Townhouse/SFD - > 3 bd" for generation rate, for MFR used average of all multi family residential rates. Generation rates for waste water for 2030 were approximated based on the reduction in consumption between 2007 and 2030.
- 24 Source: ADEIR Utility Section, Water generation.

Note: Waste water generation was conservatively estimated at 90% of potable water usage.
- 25 Source: URBEMIS 2007 Version 9.2.4 runs for San Pedro.
URBEMIS VMT and Trips may vary from Project Traffic information values due to rounding in URBEMIS. If difference, VMT from URBEMIS will be higher to show a conservative emissions estimate.

Source: SCAQMD, 2007. Rule 445 - no permanently installed indoor or outdoor wood burning device can be installed in new developments.

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2005 Usage and Generation Calculations**

Electricity Calcs			
<i>Electricity Generation Rate</i>		<i>Subtotal (kWH/year)</i>	
140,488,079 kWH/year	Residential	140,488,079	
153,556,380 kWH/year	Commercial	153,556,380	
30,239,685 kWh/year	Industrial	30,239,685	
	Total	324,284,144	kWH/year
Solid Waste Calcs			
<i>Solid Waste Generation Rate*</i>		<i>Subtotal (tons/year)</i>	
305,371 lbs/day	Residential	55,730	
150,521 lbs/day	Commercial	27,470	
31,922 lbs/day	Industrial	5,826	
	Total	89,026	tons/year
Water Calcs			
<i>Water (gals/day/unit)</i>	<i>Water Usage (gals/day)</i>	<i>Annual Water Usage (Million Gallons)</i>	
	11,988,352	4,376	
	Total	4,376	MG water (annual)
WasteWater Calcs			
<i>Water (gals/day/unit)</i>	<i>Water Usage (gals/day)</i>	<i>Annual Waste Water Generation (Million Gallons)</i>	
	10,789,517	3938.173632	
	Total	3,938.17	MG water (annual)

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2005 Operational Emissions**

Project: San Pedro NCP
Project Number: 100018607
Conversion to CO₂e Units based on GWP
 CH₄ 21
 N₂O 310

Indirect Emissions from Electricity Use

Total Residential Annual KWh: 140,488,079 kWh/year
Total Non-Residential Annual KWh: 183,796,065 kWh/year
Project Annual MWh (U_{elec}): 140,488 MWh/year
Project Annual MWh (U_{elec}): 183,796 MWh/year

Emission Factors for Electricity Use:

CO₂ 641 lbs/MWh/year
 CH₄ 0.00725 lbs/MWh/year
 N₂O 0.01078 lbs/MWh/year

Annual Emissions from Electricity Use:

	Residential	Non-Residential	Total	
CO ₂ emissions:	40847.3380	53439.2675		metric tons
CH ₄ emissions:	0.4620	0.6044		metric tons
N ₂ O emissions:	0.6869	0.8987		metric tons
	40,848	53,441	94,289	Project total Metric tons
CO ₂ emissions:	40847.3	53439.3		metric tons CO ₂ e
CH ₄ emissions:	9.7	12.7		metric tons CO ₂ e
N ₂ O emissions:	213.0	278.6		metric tons CO ₂ e
Project Total	41,070	53,731	94,801	metric tons CO₂e

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2005 Operational Emissions**

Emissions from Natural Gas Use

Emission Factors for Natural Gas Use:

CO ₂	11.67 lbs/therm	99.9913%
CH ₄	0.001 lbs/therm	0.0086%
N ₂ O	0.00002 lbs/therm	0.0002%

URBEMIS output¹

64,679 tons (short, US) Residential
14,058 tons (short, US) Commercial

Annual Emissions from Natural Gas Use:

	Residential	Non-Residential	Total	
CO ₂ emissions:	58,675,7605	12,753,1990		metric tons
CH ₄ emissions:	5,0275	1,0927		metric tons
N ₂ O emissions:	0.1005	0.0219		metric tons
	58,681	12,754	71,435	Project total Metric tons
	58,676	12,753		metric tons CO ₂ e
	106	23		metric tons CO ₂ e
	31	7		metric tons CO ₂ e

Project Total	58,813	12,783	71,595 metric tons CO₂e
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**San Pedro NCP
Greenhouse Gas Emission Worksheet
2005 Operational Emissions**

Emissions from Other Fuel Use

Other onsite fuel use (Landscaping and non-NG Hearth)		Wood burning Fireplace and Stoves	
CO ₂	19.4	lbs/gallon	3400 lbs/ton
CH ₄	0.50	gr/gallon	82.44 lbs/ton
N ₂ O	0.22	gr/gallon	0.3 lbs/ton
Fuel Use	1147.42	gallons/year	61.242615

URBEMIS Output

122.60 tons (short, US) CO ₂	Landscaping
1,485.75 tons (short, US) CO ₂	Non-Natural Gas Hearth

Annual Emissions from Natural Gas Use:

Total Emissions	Total CO₂e Units
CO ₂ emissions: 111.2209 metric tons	111.2209 metric tons CO ₂ e
CH ₄ emissions: 0.0006 metric tons	0.0000 metric tons CO ₂ e
N ₂ O emissions: 0.0003 metric tons	0.0000 metric tons CO ₂ e
Landscaping Total	
1,347.8501 metric tons	111.22 metric tons CO ₂ e
Hearth Total	
55.5584 metric tons	1347.8501 metric tons CO ₂ e
0.2022 metric tons	1166.7260 metric tons CO ₂ e
Project Total	
	4.2457 metric tons CO ₂ e
	2518.82 metric tons CO ₂ e
	2630.04 metric tons CO ₂ e

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2005 Operational Emissions**

Indirect Emissions from Solid Waste (Operational)

Total Solid Waste: 89,026 tons/year

Emission Factors for Natural Gas Use:

CO ₂	0 MT/ton	3,464.16 gr/mile
CH ₄	0.07 MT/ton	0.0051 gr/mile
N ₂ O	0 MT/ton	0.0048 gr/mile

From Fugitive emissions: Fugitive emissions of CO₂ from solid waste operations are not considered anthropogenic and therefore are not considered as part of the emissions inventory. There are no fugitive emissions of N₂O.

	tons/yr	MT/ton	MT CO ₂ e/yr
CH ₄	89,026	0.07	6,231.8

From Exhaust emissions:

	tons/yr	tons/cuyd	cuyd/trip	miles/trip	gr/mile	g/MT	MT/yr
CO ₂ - Residential	21,786	0.1125	33	24.15	3,464.16	1,000,000	490.94
CO ₂ - Non-Residential	1,240	0.2250	33	24.15	3,464.16	1,000,000	13.97
CH ₄ - Residential	21,786	0.1125	33	24.15	0.0051	1,000,000	0.00072278
CH ₄ - Non-Residential	1,240	0.2250	33	24.15	0.0051	1,000,000	0.00002056
N ₂ O - Residential	21,786	0.1125	33	24.15	0.0048	1,000,000	0.00068026
N ₂ O - Non-Residential	1,240	0.2250	33	24.15	0.0048	1,000,000	0.00001935

Annual Emissions from Solid Waste Generation:

Total Emissions	Total CO ₂ e Units
CO ₂ emissions: 504.91000 metric tons	504.9100 metric tons CO ₂ e
CH ₄ emissions: 296.75432 metric tons	6231.8407 metric tons CO ₂ e
N ₂ O emissions: 0.00070 metric tons	0.2169 metric tons CO ₂ e
Project Total	6,736.97 metric tons CO₂e

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2005 Operational Emissions**

Indirect Emissions from Water Use (Includes Potable water and Waste Water)

Indoor Uses Potable	4,375.75 MG/year	Emission Factors for Electricity Use:
Indoor Uses to Wastewater	3,938.17 MG/year	CO ₂ 641 lbs/MWh/year
Outdoor Uses*	0.00 MG/year	CH ₄ 0.0302 lbs/MWh/year
Total Project Usage/generation:	8,313.92 MG/year	N ₂ O 0.0081 lbs/MWh/year
Northern or Southern Ca?	Southern	

Annual Electricity Generation Associated with Water Uses

	Water Consumption (MG)	Energy Factor MWh/MG)	Water-energy proxies (MWh/MG)		
Indoor Uses Potable	4,375.75	11.11	No CA	So CA	
Indoor Uses to Wastewater	3,938.17	1.911	3.50	11.11	
Outdoor Uses	0.00	11.111	1.91	1.91	
Sub Total Project Usage			3.50	11.111	
Usage offset by renewables	0.00	11.11			0.00

Annual Emissions from Water Use:

Total Emissions	Total CO₂e Units
CO ₂ emissions: 16323.0 metric tons	16323.0 metric tons CO ₂ e
CH ₄ emissions: 0.8 metric tons	16.1 metric tons CO ₂ e
N ₂ O emissions: 0.2 metric tons	63.9 metric tons CO ₂ e
	Project Total
	16,403 metric tons CO₂e

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2005 Mobile Emissions**

From URBEMIS 2007 Vehicle Fleet Mix Output:
 Existing
 Daily Vehicle Miles Traveled (VMT): 637,307.51
 Annual VMT: 232,617,241
 Unmitigated CO₂ emissions from Urbemis 117,508

Vehicle Type	Percent Type	CO ₂ emissions by vehicle type	CH ₄ Emission Factor (g/mile)	New CH ₄ Emission Factor (g/mile)	N ₂ O Emission Factor (g/mile)	New N ₂ O Emission Factor (g/mile)
UNMITIGATED						
Light Auto	49.4%	58,049	0.0147	0.0072618	0.0079	0.003903
Light Truck < 3750 lbs	7.3%	8,578	0.0157	0.0011461	0.0101	0.000737
Light Truck 3751-5750 lbs	23.9%	28,084	0.0157	0.0037523	0.0101	0.002414
Med Truck 5751-8500 lbs	11.4%	13,396	0.0326	0.0037164	0.0177	0.002018
Lite-Heavy Truck 8501-10,000 lbs	1.8%	2,115	0.0326	0.0005868	0.0177	0.000319
Lite-Heavy Truck 10,001-14,000 lbs	0.5%	588	0.0326	0.000163	0.0177	8.85E-05
Med-Heavy Truck 14,001-33,000 lbs	1.0%	1,175	0.0326	0.000326	0.0177	0.000177
Heavy-Heavy Truck 33,001-60,000 lbs	0.6%	705	0.0326	0.0001956	0.0177	0.000106
Other Bus	0.1%	118	0.0326	0.0000326	0.0177	1.77E-05
Urban Bus	0.1%	118	0.0326	0.0000326	0.0177	1.77E-05
Motorcycle	2.7%	3,173	0.0147	0.0003969	0.0079	0.000213
School Bus	0.1%	118	0.0326	0.0000326	0.0177	1.77E-05
Motor Home	1.1%	1,293	0.0326	0.0003586	0.0177	0.000195
Total (Composite based on percentage)		117,508		0.0180013		0.010223

Annual Mobile Emissions:

NCP Growth with TIMP	Total CO₂e units
Total Emissions	117,508 tons CO ₂
CO₂ Emissions:	106,601 metric tons CO ₂ e
CH₄ Emissions:	88 metric tons CO ₂ e
N₂O Emissions:	737 metric tons CO ₂ e
Project Total: 107,427 metric tons CO₂e	

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2030 Usage and Generation Calculations**

Electricity Calcs			
<i>Electricity Generation Rate</i>		<i>Subtotal (kWH/year)</i>	
54,920,267 kWh/year	Residential	54,920,267	
14,430 kWh/year	Commercial	14,430	
31,218 kWh/year	Industrial	31,218	
	Total	54,965,914	kWH/year
Solid Waste Calcs			
<i>Solid Waste Generation Rate*</i>		<i>Subtotal (tons/year)</i>	
119,377 lbs/day	Residential	21,786	
-26,162 lbs/day	Commercial	(4,775)	
32,954 lbs/day	Industrial	6,014	
	Total	23,026	tons/year
Water Calcs			
<i>Water (gals/day/unit)</i>	<i>Water Usage (gals/day)</i>	<i>Annual Water Usage (Million Gallons)</i>	
	173,880	63	
	Total	63	MG water (annual)
WasteWater Calcs			
<i>Water (gals/day/unit)</i>	<i>Water Usage (gals/day)</i>	<i>Annual Waste Water Generation (Million Gallons)</i>	
	156,492	57.11958	
	Total	57.12	MG water (annual)

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2030 Operational Emissions**

Project: San Pedro NCP
Project Number: 100018607
Conversion to CO₂e Units based on GWP
 CH₄ 21
 N₂O 310

Indirect Emissions from Electricity Use

Total Residential Annual KWh: 54,965,914 kWh/year
Project Annual MWh (U_{elec}): 54,966 MWh/year
Total Non-Residential Annual KWh: 45,648 kWh/year
Project Annual MWh (U_{elec}): 46 MWh/year

Emission Factors for Electricity Use:

CO₂ 641 lbs/MWh/year
 CH₄ 0.00725 lbs/MWh/year
 N₂O 0.01078 lbs/MWh/year

Annual Emissions from Electricity Use:

	Residential	Non-Residential	Total	
CO ₂ emissions:	15981.5075	13.2722		metric tons
CH ₄ emissions:	0.1808	0.0002		metric tons
N ₂ O emissions:	0.2688	0.0002		metric tons
	15,982	13	15,995	Project total Metric tons
CO ₂ emissions:	15981.5	13.3		metric tons CO ₂ e
CH ₄ emissions:	3.8	0.0		metric tons CO ₂ e
N ₂ O emissions:	83.3	0.1		metric tons CO ₂ e
Project Total	16,069	13	16,082	metric tons CO₂e

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2030 Operational Emissions**

Emissions from Natural Gas Use

Emission Factors for Natural Gas Use:

CO ₂	11.67 lbs/therm	99.9913%
CH ₄	0.001 lbs/therm	0.0086%
N ₂ O	0.00002 lbs/therm	0.0002%

URBEMIS output¹

19,015 tons (short, US) Residential
10,734 tons (short, US) Commercial

Annual Emissions from Natural Gas Use:

	Residential	Non-Residential	Total	
CO ₂ emissions:	17,249,7907	9,737,5492		metric tons
CH ₄ emissions:	1,4780	0,8343		metric tons
N ₂ O emissions:	0,0296	0,0167		metric tons
	17,251	9,738	26,990	Project total Metric tons
	17,250	9,738		metric tons CO ₂ e
	31	18		metric tons CO ₂ e
	9	5		metric tons CO ₂ e
Project Total	17,290	9,760	27,050	metric tons CO₂e

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2030 Operational Emissions**

Emissions from Other Fuel Use

Other onsite fuel use (Landscaping and non-NG Hearth)		Wood burning Fireplace and Stoves	
CO ₂	19.4 lbs/gallon	3400 lbs/ton	
CH ₄	0.50 gr/gallon	82.44 lbs/ton	30.9158244
N ₂ O	0.22 gr/gallon	0.3 lbs/ton	
Fuel Use	1147.42 gallons/year		

URBEMIS Output

11.13 tons (short, US) CO ₂	Landscaping
750.02 tons (short, US) CO ₂	Non-Natural Gas Hearth

Annual Emissions from Natural Gas Use:

Total Emissions	Total CO ₂ e Units
CO ₂ emissions: 10.0970 metric tons	10.0970 metric tons CO ₂ e
CH ₄ emissions: 0.0006 metric tons	0.0000 metric tons CO ₂ e
N ₂ O emissions: 0.0003 metric tons	0.0000 metric tons CO ₂ e
Landscaping Total	10.10 metric tons CO₂e
CO ₂ emissions: 680.4069 metric tons	680.4069 metric tons CO ₂ e
CH ₄ emissions: 28.0464 metric tons	588.9738 metric tons CO ₂ e
N ₂ O emissions: 0.1021 metric tons	2.1433 metric tons CO ₂ e
Hearth Total	1271.52 metric tons CO₂e
Project Total	1281.62 metric tons CO₂e

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2030 Operational Emissions**

Indirect Emissions from Solid Waste (Operational)

Total Solid Waste: 23,026 tons/year

Emission Factors for Natural Gas Use:

CO ₂	0 MT/ton	3,464.16 gr/mile
CH ₄	0.07 MT/ton	0.0051 gr/mile
N ₂ O	0 MT/ton	0.0048 gr/mile

From Fugitive emissions: Fugitive emissions of CO₂ from solid waste operations are not considered anthropogenic and therefore are not considered as part of the emissions inventory. There are no fugitive emissions of N₂O.

	tons/yr	MT/ton	MT CO ₂ e/yr
CH ₄	23,026	0.07	1,611.8

From Exhaust emissions:

	tons/yr	tons/cuyd	cuyd/trip	miles/trip	gr/mile	g/MT	MT/yr
CO ₂ - Residential	21,786	0.1125	33	24.15	3,464.16	1,000,000	490.94
CO ₂ - Non-Residential	1,240	0.2250	33	24.15	3,464.16	1,000,000	13.97
CH ₄ - Residential	21,786	0.1125	33	24.15	0.0051	1,000,000	0.00072278
CH ₄ - Non-Residential	1,240	0.2250	33	24.15	0.0051	1,000,000	0.00002056
N ₂ O - Residential	21,786	0.1125	33	24.15	0.0048	1,000,000	0.00068026
N ₂ O - Non-Residential	1,240	0.2250	33	24.15	0.0048	1,000,000	0.00001935

Annual Emissions from Solid Waste Generation:

Total Emissions	Total CO ₂ e Units
CO ₂ emissions: 504.91000 metric tons	504.9100 metric tons CO ₂ e
CH ₄ emissions: 76.75389 metric tons	1611.8317 metric tons CO ₂ e
N ₂ O emissions: 0.00070 metric tons	0.2169 metric tons CO ₂ e
Project Total	2116.96 metric tons CO₂e

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2030 Operational Emissions**

Indirect Emissions from Water Use (Includes Potable water and Waste Water)

Indoor Uses Potable	63.47 MG/year	Emission Factors for Electricity Use:
Indoor Uses to Wastewater	57.12 MG/year	CO ₂ 641 lbs/MWh/year
Outdoor Uses*	0.00 MG/year	CH ₄ 0.0302 lbs/MWh/year
Total Project Usage/generation:	120.59 MG/year	N ₂ O 0.0081 lbs/MWh/year
Northern or Southern Ca?	Southern	

Annual Electricity Generation Associated with Water Uses

	Water Consumption (MG)	Energy Factor MWh/MG)	Water-energy proxies (MWh/MG)		
Indoor Uses Potable	63.47	11.11	No CA	So CA	
Indoor Uses to Wastewater	57.12	1.911	3.50	11.11	
Outdoor Uses	0.00	11.111	1.91	1.91	
Sub Total Project Usage			3.50	11.111	
Usage offset by renewables	0.00	11.11			0.00

Annual Emissions from Water Use:

Total Emissions	236.8 metric tons	Total CO₂e Units
CO ₂ emissions:	236.8 metric tons	236.8 metric tons CO ₂ e
CH ₄ emissions:	0.0 metric tons	0.2 metric tons CO ₂ e
N ₂ O emissions:	0.0 metric tons	0.9 metric tons CO ₂ e
Project Total		238 metric tons CO₂e

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2030 Mobile Emissions**

From URBEMIS 2007 Vehicle Fleet Mix Output:

NCP Total	NCP Growth
754,057.82	116,750
Daily Vehicle Miles Traveled (VMT):	42,613,863
Annual VMT:	22,074
Unmitigated CO ₂ emissions from Urbemis	139,581

Vehicle Type	Percent Type	CO ₂ emissions by vehicle type	CH ₄ Emission Factor (g/mile)	New CH ₄ Emission Factor (g/mile)	N ₂ O Emission Factor (g/mile)	New N ₂ O Emission Factor (g/mile)
UNMITIGATED						
Light Auto	49.4%	68,953	0.0147	0.0072618	0.0079	0.003903
Light Truck < 3750 lbs	7.3%	10,189	0.0157	0.0011461	0.0101	0.000737
Light Truck 3751-5750 lbs	23.9%	33,360	0.0157	0.0037523	0.0101	0.002414
Med Truck 5751-8500 lbs	11.4%	15,912	0.0326	0.0037164	0.0177	0.002018
Lite-Heavy Truck 8501-10,000 lbs	1.8%	2,512	0.0326	0.0005868	0.0177	0.000319
Lite-Heavy Truck 10,001-14,000 lbs	0.5%	698	0.0326	0.000163	0.0177	8.85E-05
Med-Heavy Truck 14,001-33,000 lbs	1.0%	1,396	0.0326	0.000326	0.0177	0.000177
Heavy-Heavy Truck 33,001-60,000 lbs	0.6%	837	0.0326	0.0001956	0.0177	0.000106
Other Bus	0.1%	140	0.0326	0.000326	0.0177	1.77E-05
Urban Bus	0.1%	140	0.0326	0.000326	0.0177	1.77E-05
Motorcycle	2.7%	3,769	0.0147	0.0003969	0.0079	0.000213
School Bus	0.1%	140	0.0326	0.000326	0.0177	1.77E-05
Motor Home	1.1%	1,535	0.0326	0.0003586	0.0177	0.000195
Total (Composite based on percentage)		139,581		0.0180013		0.010223

Annual Mobile Emissions:

NCP Growth with TIMP		Total CO₂e units	
Total Emissions	139,581 tons CO ₂	126,626 metric tons CO ₂ e	
CO ₂ Emissions:	4.955 metric tons CH ₄	104 metric tons CO ₂ e	
CH ₄ Emissions:	2.814 metric tons N ₂ O	872 metric tons CO ₂ e	
N ₂ O Emissions:			
Project Total:		127,602 metric tons CO₂e	

*TIMP assumes a 10% reduction in VMT trips for street alignments and taking into account the increased density. Therefore, BAU emissions for mobile sources would be 10% higher or:
140,363 metric tons CO₂e

**San Pedro NCP
Greenhouse Gas Emission Worksheet
2030 Mobile Emissions**

UNMITIGATED									
Light Auto	49.4%	10,904	0.0147	0.0072618	0.0079	0.003903			
Light Truck < 3750 lbs	7.3%	1,611	0.0157	0.0011461	0.0101	0.000737			
Light Truck 3751-5750 lbs	23.9%	5,276	0.0157	0.0037523	0.0101	0.002414			
Med Truck 5751-8500 lbs	11.4%	2,516	0.0326	0.0037164	0.0177	0.002018			
Lite-Heavy Truck 8501-10,000 lbs	1.8%	397	0.0326	0.0005868	0.0177	0.000319			
Med-Heavy Truck 10,001-14,000 lbs	0.5%	110	0.0326	0.000163	0.0177	8.85E-05			
Heavy-Heavy Truck 14,001-33,000 lbs	1.0%	221	0.0326	0.000326	0.0177	0.000177			
Heavy-Heavy Truck 33,001-60,000 lbs	0.6%	132	0.0326	0.0001956	0.0177	0.000106			
Other Bus	0.1%	22	0.0326	0.0000326	0.0177	1.77E-05			
Urban Bus	0.1%	22	0.0326	0.0000326	0.0177	1.77E-05			
Motorcycle	2.7%	596	0.0147	0.0003969	0.0079	0.000213			
School Bus	0.1%	22	0.0326	0.0000326	0.0177	1.77E-05			
Motor Home	1.1%	243	0.0326	0.0003586	0.0177	0.000195			
Total (Composite based on percentage)		22,074		0.0180013		0.010223			

Annual Mobile Emissions:

NCP Growth with TIMP		Total CO ₂ e units	
Total Emissions	22,074 tons CO ₂	20,025 metric tons CO ₂ e	
CO ₂ Emissions:	0.767 metric tons CH ₄	16 metric tons CO ₂ e	
CH ₄ Emissions:	0.436 metric tons N ₂ O	135 metric tons CO ₂ e	
N ₂ O Emissions:			
Project Total:		20,176 metric tons CO ₂ e	

*TIMP assumes a 10% reduction in VMT trips for street alignments and taking into account the increased density. Therefore, BAU emissions for mobile sources would be 10% higher or: 22,193 metric tons CO₂e

Reductions and Calculations

San Pedro NCP Reduction Measures

R1 Reductions

R1 measures are federal, state, and local jurisdiction regulations that will provide greenhouse gas reductions for the City.

M2 Reductions

M2 measures are those measures that further define and enhance existing City goals and policies to provide a quantifiable reduction.

MM Reductions

MM measures are mitigation measures that are applied to further reduce the City's emission goals.

Transportation Reduction Measures

R1-T 1 Assembly Bill 1493: Pavley I & Pavley II

Assembly Bill (AB) 1493 (Pavley) required the California Air Resources Board (CARB) to adopt regulations that will reduce GHG from automobiles and light-duty trucks by 30 percent below 2002 levels by the year 2016, effective with 2009 models. By 2020, this requirement will reduce emissions in California by approximately 16.4 million metric tons of carbon dioxide equivalent (MMTCO₂e). Pavley II committed to further strengthening the AB1493 standards beginning in 2017 to obtain a 45 percent GHG reduction from 2020 model year vehicles. By 2020, this requirement will reduce emissions in California by approximately 4.0 MMTCO₂e.

Pavley Reduction Assumptions:	% of Emissions¹	2030
	% LDA CO ₂ Emissions	42.15%
	% LDT1 CO ₂ Emissions	13.03%
	% LDT2 CO ₂ Emissions	19.76%
	% MDV CO ₂ Emissions	9.32%
	% Reduction in CO₂¹	
	LDA	30.60%
	LDT1	28.71%
	LDT2	20.63%
	MDV	20.47%

⁽¹⁾ Source: BAAQMD Greenhouse Gas Model (BGM), Version 1.1.9 Beta.

R1-T 2 Executive Order S-1-07 (Low Carbon Fuel Standard)

The Low Carbon Fuel Standard (LCFS) requires a reduction of at least ten (10) percent in the carbon intensity of California's transportation fuels by 2020. This requirement will reduce emissions in California by approximately 15 MMTCO₂e from passenger/light-duty vehicles in the state.

	2030
Reduction to automobiles & light duty Trucks ⁽¹⁾ =	7.20%

San Pedro NCP Reduction Measures

R1-T 3 Tire Pressure Program

The AB 32 early action measure involves actions to ensure that vehicle tire pressure is maintained to manufacturer specifications. By 2020, this requirement will reduce emissions in California by approximately 0.55 MMTCO₂e, representing 0.3 percent of emissions from passenger/light-duty vehicles in the state.

		2030
Reduction to automobiles & light duty Trucks	=	0.30%

R1-T 4 Low Rolling Resistance Tires

This created an energy efficiency standard for automobile tires to reduce rolling resistance. By 2020, this requirement will reduce emissions in California by approximately 0.3 MMTCO₂e, representing 0.2 percent of emissions from passenger/light-duty vehicles in the state.

		2030
Reduction to automobiles & light duty Trucks	=	0.30%

R1-T 5 Low Friction Engine Oils

This AB 32 early action measure would increase vehicle efficiency by mandating the use of engine oils that meet certain low friction specifications. By 2020, this requirement will reduce emissions in California by approximately 2.8 MMTCO₂e, representing 1.7 percent of emissions from passenger light-duty vehicles in the state.

		2030
Reduction to automobiles & light duty Trucks	=	1.70%

R1-T 6 Cool Paints and Reflective Glazing

This AB 32 early action measure is based on measures to reduce the solar heat gain in a vehicle parked in the sun. By 2020, this requirement will reduce emissions in California by approximately 0.89 MMTCO₂e, representing 0.6 percent of emissions from passenger/light-duty vehicles in the state.

		2030
Reduction to automobiles & light duty Trucks	=	0.60%

R1-T 7 Goods Movement Efficiency Measures

This AB 32 early action measure targets system wide efficiency improvements in goods movement to achieve GHG reductions from reduced diesel combustion. By 2020, this requirement will reduce emissions in California by approximately 3.5 MMTCO₂e, representing 1.6 Percent of emissions from all mobile sources (on-road and off-road) in the state.

		2030
Reduction afforded to Medium and Heavy Duty Vehicle emissions	=	1.60%

San Pedro NCP Reduction Measures

R1-T 8 Heavy-Duty Vehicle GHG Emission Reduction (Aerodynamic Efficiency)

This AB 32 early action measure would increase heavy-duty vehicle (long-haul trucks) efficiency by requiring installation of best available technology and/or CARB approved technology to reduce aerodynamic drag and rolling resistance. By 2020, this requirement will reduce emissions in California by approximately 0.93 MMTCO₂e, representing 1.9 percent of emissions from heavy-duty vehicles in the state.

Reduction afforded to Heavy Duty Vehicles	2030
emissions	= 1.90%

R1-T 9 Medium and Heavy Duty Vehicle Hybridization

The implementation approach for this AB 32 measure is to adopt a regulation and/or incentive program that reduce the GHG emissions of new trucks (parcel delivery trucks and vans, utility trucks, garbage trucks, transit buses, and other vocational work trucks) sold in California by replacing them with hybrids. By 2020, this requirement will reduce emissions in California by approximately 0.5 MMTCO₂e, representing 0.2 percent of emissions from all on-road mobile sources in the state. This reduction is also equivalent to a 1.0 percent reduction of emissions from all heavy-duty trucks in the state.

Reduction afforded to Medium & Heavy Duty	2030
Vehicle Emissions	= 0.20%

MM 4.2-14 Anti-Idling Enforcement

The Applicant shall require by contract specifications that electrical outlets are included in the building design of the loading docks to allow use by refrigerated delivery trucks. The proposed project Applicant shall require that no trucks idled for more than five minutes. If loading and/or unloading of perishable goods would occur for more than 5 minutes, and continual refrigeration is required, all refrigerated delivery trucks shall use the electrical outlets to continue powering the truck refrigeration units when the delivery truck engine is turned off. Supports the City's Green Industry Goals (LU13 and 15).

Assumptions:

- * By 2020, this measure results in a 1.8% reduction in exhaust from Medium Duty Vehicles in the City.
- * By 2020, this measure results in a 1.8% reduction in exhaust from Heavy Duty Vehicles in the City.
- * Measures R1-T1 through R1-T6 are implemented.

Reductions:

	2030
% Medium Duty that is diesel ⁽²⁾	= 0.00%
% Heavy Duty that is diesel ⁽²⁾	= 48.73%
% reduction afforded by this measure	= 1.80%
Reduction afforded to Medium Duty Vehicle	
Emissions	= 0.00%
Reduction afforded to Heavy Duty Vehicle	
Emissions	= 0.88%

⁽²⁾ Source: URBEMIS 2007 Version 9.2.4.

San Pedro NCP Reduction Measures

MM 4.2-18 Employment Based Trip and VMT Reduction

Project Applicant shall promote trip reduction through commuter-choice programs, employer transportation management, guaranteed ride home programs, and commuter assistance and outreach type programs intended to reduce commuter vehicle miles traveled. This measure would require employers with more than 100 employees establish a trip reduction plan that would incorporate annual employee commute surveys, marketing of commute alternatives, ride matching assistance, and transit information at a minimum, and implements secure bicycle parking, showers and lockers for employees who bike to work . Further this measure would encourage smaller businesses located in close proximity to cooperate in establishing joint trip reduction plans. Supports and enhances Community Plan Goal M9.

Assumptions:

- * Assumes that a 100% eligibility rate is established by 2030 (6.2% reduction in emissions) for new industrial development.
- * Assumes that a 10% eligibility rate is established by 2030 (0.62% reduction in emissions) for new commercial development.
- * Measures R1-T1 through R1-T7 are implemented.
- * Assumes that 75% of new development has Bicycle amenities.

Reductions:

	2030
% Light duty Auto and Trucks ⁽¹⁾ =	80.60%
% Industrial =	65.35%
Reduction afforded Industrial ⁽³⁾ =	6.20%
% reduction from new development =	3.27%
% commercial =	0.00%
Reduction afforded Commercial ⁽³⁾ =	0.62%
% reduction from commercial development =	0.00%
% reduction from bicycle amenities ⁽³⁾ =	0.47%
Total Reduction =	3.64%

⁽³⁾ Source: CAPCOA. *Quantifying Greenhouse Gas Mitigation Measures August 2010.*

MM 4.2-19 Car and Bicycleshares

Project Applicant shall implement car and bicycle sharing programs. Project Applicant shall collaborate with service providers to identify potential sites for locating carshares, such that a minimum of 20 percent of new development participates in these programs by 2030. Supports and enhances Community Plan Goals M4, M5 and M9.

Assumptions:

- * ⁽³⁾ Assumes a 20% implementation for all new development.
- * ⁽³⁾ Reduction afforded for passenger and light duty trucks only.

Reductions:

	2030
% Light duty Auto and Trucks ⁽¹⁾ =	80.60%
% new development participation =	20.00%
Reduction afforded =	0.74%
Total Reduction =	0.12%

San Pedro NCP Reduction Measures

MM 4.2-20 Safe and Convenient Public Transit

Major employers (companies with more than 100 employees) shall provide employer-based “open-door” shuttles to local transit hubs. Collaborate with regional transportation agencies to maintain and enhance service within the City and region. Explore strategies to address affordability, access and safety. Expand outreach and information programs to promote transit use. Implementation of this measure shall increase transit network coverage and reduce headway by 20 percent by 2030. Supports and enhances Community Plan Policies M5, M6 and M9.

Assumptions:

- * Reduction afforded for passenger and light duty trucks only.
- * Measures R1-T1 through R1-T7 and R2-T1 - R2-T4 are implemented.
- * Assumes reduction to City-wide emissions not just project.
- * Assumes 20% reduction in headway
- * Assumes 20% increase in transit network coverage

Reductions:

	2030
% Light duty Auto and Trucks ⁽¹⁾ =	80.60%
Reduction afforded for expanded transit service ⁽³⁾ =	1.64%
Reduction afforded for increase in service frequency ⁽³⁾ =	0.36%
Total Reduction =	1.62%

Energy Reduction Measures

R1-E 1 Renewable Portfolio Standard for Building Energy Use

Senate Bills (SBs) 1075 (2002) and 107 (2006) created the state's Renewable Portfolio Standard (RPS), with an initial goal of 20 percent renewable energy production by 2010. Executive Order (EO) S-14-08 establishes a RPS target of 33 percent by the year 2020 and requires state agencies to take all appropriate actions to ensure the target is met. The 33 percent RPS by 2020 goal is supported by the California Air Resources Board (CARB), though its feasibility is not certain due to current limitations in production and transmission of renewable energy.

Assumptions:

- * LADWP reaches its 33% goal for 2020.
- * Assumes that in 2009 SCE's renewable portfolio was at 17%
- * Assumes a 33% reduction in new emissions generated past 2020.
- * Assumes R1-E2 through R1-E6 have been implemented.

	Residential	Non-Residential
Reductions:	2030	2030
% of usage from Existing =	-	-
% reduction from 2005 levels =	-	-
Total % reduction from Existing =	-	-
% of usage from Growth =	100.00%	100.00%
% reduction from Growth =	33.00%	33.00%
Total % reduction from Growth =	33.00%	33.00%
% percent reduction =	33.00%	33.00%

San Pedro NCP Reduction Measures

R1-E 2 & 3 AB 1109 Energy Efficiency Standard for Lighting

Assembly Bill (AB 1109) mandated that the California Energy Commission (CEC) adopt energy efficiency standards for general purpose lighting. These regulations, combined with other state efforts, shall be structured to reduce state-wide electricity consumption in the following ways:

- * R1-E2: At least 50 percent reduction from 2007 levels for indoor residential lighting by 2018; and
- * R1-E3: At least 25 percent reduction from 2007 levels for indoor commercial and outdoor lighting by 2018.

Assumptions:

- * Assumes 20% of residential electrical use is from lighting.
- * Assumes 37.14% of commercial/industrial electrical usage is from lighting.
- * No data was available to determine outdoor lighting use, therefore no reduction was taken.

Reductions:

% reduction from residential electrical use	=	10.00%
% reduction from commercial/industrial electrical use	=	9.29%

R1-E 4 Electrical Energy Efficiency

This measure captures the emission reductions associated with electricity energy efficiency activities included in CARB's AB 32 Scoping Plan that are not attributed to other R1 or R2 reductions as described in this report. This measure includes energy efficiency measures that CARB views as crucial to meeting the state-wide 2020 target, and will result in additional emissions reductions beyond those already accounted for in California's Energy Efficiency Standards for Residential and Non-Residential Buildings (Title 24, Part 6 of the California Code of Regulations; hereinafter referred to as, "Title 24 Energy Efficiency Standards"), etc. By 2020, this requirement will reduce emissions in California by approximately 21.3 MMTCO_{2e}, representing 17.5 percent of emissions from all electricity in the State. This measure includes the following strategies:

- * "Zero Net Energy" buildings (buildings that combine energy efficiency and renewable generation so that they, based on an annual average, extract no energy from the grid);
- * Broader standards for new types of appliances and for water efficiency;
- * Improved compliance and enforcement of existing standards;
- * Voluntary efficiency and green building targets beyond mandatory codes;
- * Voluntary and mandatory whole-building retrofits for existing buildings;
- * Innovative financing to overcome first-cost and split incentives for energy efficiency, on-site renewables, and high efficiency distributed generation;
- * More aggressive utility programs to achieve long-term savings;
- * Water system and water use efficiency and conservation measures;
- * Additional industrial and agricultural efficiency initiatives; and
- * Providing real time energy information technologies to help consumers conserve and optimize energy performance.

Assumptions:

- * The percent reduction from California's emissions from various energy efficiency measures is equal to the reduction of emissions from Growth for this measures or 17.5% past 2020. Assumes average growth of 5% per year (Conservative).
- * Assumes 1.75% increase in reduction per year between 2010 and 2020 or (4.81 % reduction in total emissions prior to 2020)

San Pedro NCP Reduction Measures

Reductions:		2030
% reduction afforded	=	17.50%
% of electricity from new development beyond	=	50.00%
% reduction applied for development beyond 2020	=	8.75%
% reduction afforded	=	9.63%
% of electricity from new Com/Ind development	=	50.00%
% reduction applied for Com/Ind	=	4.81%
Total Reduction	=	13.56%

R1-E 5 Natural Gas Energy Efficiency

This measure captures the emission reductions associated with natural gas energy efficiency activities included in CARB's AB 32 Scoping Plan that are not attributed to other R1 or R2 reductions, as described in this report. This measure includes energy efficiency measures that CARB views as crucial to meeting the state-wide 2020 target, and will result in additional emissions reductions beyond those already accounted for in California's Energy Efficiency Standards for Residential and Non-Residential Buildings (Title 24, Part 6 of the California Code of Regulations; hereinafter referred to as, "Title 24 Energy Efficiency Standards") etc. By 2020, this requirement will reduce emissions in California by approximately 4.3 MMTCO_{2e}, representing 6.2 percent of emissions from all natural gas combustion in the state. This measure includes the following strategies:

- * "Zero Net Energy" buildings (buildings that combine energy efficiency and renewable generation so that they, based on an annual average, extract no energy from the grid);
- * Broader standards for new types of appliances and for water efficiency;
- * Improved compliance and enforcement of existing standards;
- * Voluntary efficiency and green building targets beyond mandatory codes;
- * Voluntary and mandatory whole-building retrofits for existing buildings;
- * Innovative financing to overcome first-cost and split incentives for energy efficiency, on-site renewables, and high efficiency distributed generation;
- * More aggressive utility programs to achieve long-term savings;
- * Water system and water use efficiency and conservation measures;
- * Additional industrial and agricultural efficiency initiatives; and
- * Providing real time energy information technologies to help consumers conserve and optimize energy performance.

Assumptions:

- * The percent reduction from California's emissions from various energy efficiency measures is equal to the City's emissions from this measures or 6.2%.
- * Assumes application only to New development.

Reductions:		2030
% reduction afforded	=	6.20%
% of electricity from new development beyond	=	50.00%
% reduction applied for development beyond 2020	=	3.10%
% reduction afforded	=	3.41%
% of electricity from new Com/Ind development	=	50.00%
% reduction applied for Com/Ind	=	1.71%
Total Reduction	=	4.81%

San Pedro NCP Reduction Measures

R1-E 6 Increased Combined Heat and Power

This measure captures the reduction in building electricity emissions associated with the increase of combined heat and power activities, as outlined in CARB's AB 32 Scoping Plan. The Scoping Plan suggests that increased combined heat and power systems, which capture "waste heat" produced during power generation for local use, will offset 30,000 GWh state-wide in 2020. Approaches to lowering market barriers include utility-provided incentive payments, a possible CHP portfolio standard, transmission and distribution support systems, or the use of feed-in tariffs. By 2020, this requirement will reduce emissions in California by approximately 6.7 MMTCO₂e, representing 7.6 percent of emissions from all electricity in the state.

Assumptions:

- * The percent reduction from California's emissions is equal to the City's emissions from this measures or 7.6%.

Reductions:

	2030	
% reduction afforded	=	7.60%

MM 4.6-1 Electrical Energy Efficiency

The Project Applicant shall ensure that all residential and commercial developments increase electrical energy efficiency by 20% beyond 2008 standards.

Assumptions:

- * This measure applies to all new residential, commercial, and industrial development.
- * This measure applies to all new residential, commercial, and industrial development.

		2030
% reduction afforded to Residential (per % increase SFR)	=	0.11%
% increase	=	20.00%
% reduction	=	2.20%
% reduction afforded to Residential (per % increase MFR)	=	0.09%
% increase	=	20.00%
% reduction	=	1.80%
% residential SFR	=	28.08%
% Residential MFR	=	71.92%
Total Residential Reduction (%)	=	1.91%
% reduction afforded to Non-Residential	=	0.28%
% increase	=	20.00%
% reduction	=	5.60%

San Pedro NCP Reduction Measures

MM 4.6-2 Natural Gas Energy Efficiency

The Project Applicant shall ensure that all residential and commercial developments increase electrical energy efficiency by 20% beyond 2008 standards.

Assumptions:

- * This measure applies to all new residential, commercial, and industrial development.
- * This measure applies to all new residential, commercial, and industrial development.

		2030
% reduction afforded to Residential (per % increase SFR)	=	0.82%
% increase	=	20.00%
% reduction	=	16.40%
% reduction afforded to Residential (per % increase MFR)	=	0.77%
% increase	=	20.00%
% reduction	=	15.40%
% residential SFR	=	28.08%
% Residential MFR	=	71.92%
Total Residential Reduction (%)	=	15.68%
% reduction afforded to Non-Residential	=	0.60%
% increase	=	20.00%
% reduction	=	12.00%

MM 4.6-3 Renewable Energy Program

The Project Applicant shall include the use of or contribution to increased renewable energy power generation such that at least 2.5 percent of the project's energy comes from renewable sources .

Assumptions:

- * Applies to new development.
- * Assumes that 100% of all new development will participate.
- * Assumes a 2.5% reduction in electricity.

		Residential	Non-Residential
Reductions:		2030	2030
% of electricity from new development	=	100.00%	100.00%
% reduction from Program	=	2.50%	2.50%
Total Reduction	=	2.50%	2.50%

San Pedro NCP Reduction Measures

MM 4.6-4 Install Energy Efficient Boilers

Boilers are used in many non-residential and multi-family housing buildings to provide space heating or steam for facility operations. Boiler efficiencies are regulated and commonly presented as annualized fuel utilization efficiency, a ratio of the total useful heat delivered to the heat value from the annual amount of fuel consumed. Improving boiler efficiencies decrease natural gas consumption for the same amount of energy output, thus reducing GHG emissions. All new commercial and multi-family developments installing boilers will be required to install energy efficient boilers such that a minimum reduction of 4.5% is achieved. The same reductions shall be required of all remodeled multi-family developments of over 10 units and all commercial/industrial remodels of over 10,000 square feet.

Assumptions:

- * Applies to new multi-family and commercial/industrial development.
- * Assumes that 100% of new municipal development, and 50% of all other new development will participate.
- * 100% participation by new development, 5% of land uses are retrofitted by 2020 and 15% by 2030.
- * Assumes residential breakdown to be: 28% Single Family Residential and 72% multi-family residential.
- * Assumes a 12% of installed building heating equipment consists of boilers.(3)
- * Assumes a 4.5% reduction in natural gas usage.(3)

Reductions:		Residential	Non-Residential
		2030	2030
	% of NG from new development:	= 71.92%	100.00%
	% of NG from boilers:	= 8.63%	12.00%
	% reduction from Program	= 4.50%	4.50%
	Total Reduction	= 0.39%	0.54%

Solid Waste Reduction Measures

R1-W1 Waste Reduction and recycling Program

California state regulations require a minimum diversion of 50% of all generated waste from landfills.

Reductions:		2030
	% reduction applied	= 50.00%

San Pedro NCP Reduction Measures

Other Fuels

R1-01 Wood burning stoves and fireplaces

SCAQMD has banned the indoor use of all woodburning devices (stoves and furnaces).

Assumptions:

- * Applies to all new construction.
- * Assumes all non-natural gas emissions are eliminated from new residential properties.

Reductions:

	2030
% reduction applied	100.00%

MM 4.6-5 Landscape Equipment

The Project Applicant shall ensure that all new development is equipped with outdoor electrical outlets such that a minimum of 10% of all landscaping equipment's fuel use can be offset.

Assumptions:

- * Applies to all new construction.
- * Assumes 10% of landscape equipment is electric.

Reductions:

	2030
% new development participation	100.00%
% reduction ⁽²⁾	10.00%
% reduction applied	10.00%

San Pedro NCP Residential Energy Reduction Summary

	2030
Electricity	16,069
Natural Gas	17,290
	33,359

Electricity	
BAU:	16,069
R1-E1:	33.00%
	<i>10,766</i>
R1-E2:	10.00%
	<i>9,689</i>
R1-E6:	7.60%
	<i>8,953</i>
MM 4.6-1	1.91%
	<i>8,782</i>
MM 4.6-3	2.50%
	<i>8,562</i>

Natural Gas	
BAU:	17,290
R1-E5:	4.81%
	<i>16,458</i>
MM 4.6-2	15.68%
	<i>13,878</i>
MM 4.6-4	0.39%
	<i>13,824</i>

Total Reduced	8,562.2
% Reduction	46.71%

Total Reduced	13,824
% Reduction	20.05%

San Pedro NCP Residential Energy Reduction Summary

	2030
Electricity	13
Natural Gas	9,760
	9,774

Electricity	
BAU:	13.34
R1-E1:	33.00%
	<i>8.94</i>
R1-E3:	9.29%
	<i>8.11</i>
R1-E6:	7.60%
	<i>7.49</i>
MM 4.6-1	5.60%
	<i>7.07</i>
MM 4.6-3	2.50%
	<i>6.90</i>

Natural Gas	
BAU:	9,760
R1-E5:	4.81%
	<i>9,291</i>
MM 4.6-2	12.00%
	<i>8,176</i>
MM 4.6-4	0.54%
	<i>8,132</i>

Total Reduced	6.9
% Reduction	48.31%

Total Reduced	8,132
% Reduction	16.69%

**San Pedro NCP
Other Fuel Sources**

	Landscape	Hearth
	Business-As-Usual Inventory	
	2030	2030
Total	10	1271.52

	Landscape		Hearth
	2030		2030
BAU:	10.10	BAU:	1,271.52
MM 4.3-5	10.00%	R1-01	100.00%
	9.09		0.00

Total Reduced	9	Total Reduced	0.00
% Reduction	10.00%	% Reduction	100.00%

**San Pedro NCP
Waste Reduction Summary**

Waste
Business-As-Usual Inventory
2030
Total 2,117

Waste Reductions:

2030
BAU: 2,117
R1-W1 50.00%
1,058

Total Reduced 1,058
% Reduction 50.00%

San Pedro NCP Water Reduction Summary

Business-As-Usual Inventory

2030
Total 238

Waste Reductions:

2030
BAU: 238
R2-W1 20.00%
190

Total Reduced 190
% Reduction 20.00%

San Pedro NCP Transportation Reduction Summary

Business-As-Usual Inventory MT CO ₂ e		
	2030	2030 City
Light Duty Auto	8,504	53,784
Light Duty Truck 1	2,629	16,627
Light Duty Truck 2	3,987	25,214
Medium Duty Vehicle	1,880	11,893
Heavy Duty Vehicles	1,548	9,791
Rest	1,628	10,293
Total	20,176	127,602

Transportation Emission Reductions

2030		2030		2030	
R1-T1		R1-T4	0.30%	R1-T7	1.60%
LDA	5,902	LDA	5,444	LDA	5,411
LDT1	1,874	LDT1	1,729	LDT1	1,718
LDT2	3,164	LDT2	2,919	LDT2	2,901
MDV	1,495	MDV	1,495	MDV	1,472
HDV	1,548	HDV	1,548	HDV	1,523
Rest	1,628	Rest	1,628	Rest	1,628
	15,611		14,763		14,654
R1-T2	7.20%	R1-T5	1.70%	R1-T8	1.90%
LDA	5,477	LDA	5,352	LDA	5,411
LDT1	1,739	LDT1	1,699	LDT1	1,718
LDT2	2,936	LDT2	2,869	LDT2	2,901
MDV	1,495	MDV	1,495	MDV	1,444
HDV	1,548	HDV	1,548	HDV	1,494
Rest	1,628	Rest	1,628	Rest	1,628
	14,824		14,591		14,597
R1-T3	0.30%	R1-T6	0.60%	R1-T9	0.20%
LDA	5,461	LDA	5,411	LDA	5,411
LDT1	1,734	LDT1	1,718	LDT1	1,718
LDT2	2,928	LDT2	2,901	LDT2	2,901
MDV	1,495	MDV	1,495	MDV	1,444
HDV	1,548	HDV	1,548	HDV	1,491
Rest	1,628	Rest	1,628	Rest	1,628
	14,793		14,702		14,594

San Pedro NCP Transportation Reduction Summary

2030		Reductions in VMT	
MM 4.2-14	0.88%	MM 4.2-14	0.88% Growth
	14,466	MM 4.2-18	3.64% Growth
MM 4.2-18	3.64%	MM 4.2-19	0.12% Growth
	13,939	MM 4.2-20	14.81% Growth (1.62% of city wide)
MM 4.2-19	0.12%	Mitigation total	19.45%
	13,922	TIMP	10.00%
MM 4.2-20	1.62%	Total	29.45%
	11,860		
Total Reduced	11,860		
% Reduction	41.22%		



Combined Annual Emissions Reports (Tons/Year)

File Name: R:\General Air Quality Info\Projects\100018607 - San Pedro New Community Plan EIR\Modeling\Urbemis\March 2011\San Pedro Existing.urb924

Project Name: San Pedro EIR - Existing

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

TOTALS (tons/year, unmitigated) CO2
78,859.55

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

TOTALS (tons/year, unmitigated) CO2
117,507.90

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

TOTALS (tons/year, unmitigated) CO2
196,367.45

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source CO2
Natural Gas 75,781.82

Hearth	2,955.13
Landscape	122.60
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	78,859.55

Area Source Changes to Defaults

The number of persons per household for consumer product use changed from 3 persons to 2.4 persons

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>CO2</u>
Single family housing	37,992.50
Apartments low rise	51,319.66
Apartments mid rise	973.07
Apartments high rise	7,960.29
General office building	483.02
Office park	4,675.38
Government office building	4,831.89
Government (civic center)	574.47
General light industry	46.31
General heavy industry	4,191.87
Regional Commercial	1,234.88
Limited Manufacturing	2,338.89
Open Space	185.67

Operational Settings:

- Does not include correction for passby trips
- Does not include double counting adjustment for internal trips

Analysis Year: 2005 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	1,438.00	2.30	dwelling units	8,863.00	20,384.90	205,887.49
Apartments low rise	991.00	2.30	dwelling units	11,972.00	27,535.60	278,109.56
Apartments mid rise	162.00	2.30	dwelling units	227.00	522.10	5,273.21
Apartments high rise	25.00	2.30	dwelling units	1,857.00	4,271.10	43,138.11
General office building		1.22	1000 sq ft	212.27	258.97	2,629.19
Office park		1.22	1000 sq ft	2,045.83	2,495.91	25,388.42
Government office building		1.22	1000 sq ft	2,141.19	2,612.25	26,422.93
Government (civic center)		1.22	1000 sq ft	254.57	310.58	3,141.47
General light industry		1.22	1000 sq ft	20.25	24.71	251.37
General heavy industry		1.22	1000 sq ft	1,820.49	2,221.00	22,643.07
Regional Commercial		1.22	1000 sq ft	548.69	669.40	6,762.97
Limited Manufacturing		1.22	1000 sq ft	1,039.23	1,267.86	12,809.20
Open Space		1.22	1000 sq ft	82.50	100.65	1,016.87
Public Facilities		1.22	1000 sq ft	311.03	379.46	3,833.65
					63,054.49	637,307.51

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel

Light Auto	52.5	2.9	96.7	0.4
Light Truck < 3750 lbs	7.5	6.7	89.3	4.0
Light Truck 3751-5750 lbs	22.1	1.4	98.1	0.5
Med Truck 5751-8500 lbs	10.2	2.0	98.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.8	0.0	83.3	16.7
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	100.0	0.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.7	85.2	14.8	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	12.5	75.0	12.5

Travel Conditions

	Residential				Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
Urban Trip Length (miles)	10.1	10.1	10.1	10.2	10.2	10.1	
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6	
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0	
% of Trips - Residential	30.6	20.3	49.1				
% of Trips - Commercial (by land use)							
General office building				35.0	17.5	47.5	
Office park				48.0	24.0	28.0	
Government office building				10.0	5.0	85.0	

10.0	5.0	85.0
50.0	25.0	25.0
90.0	5.0	5.0
2.0	1.0	97.0
2.0	1.0	97.0
2.0	1.0	97.0
2.0	1.0	97.0

General light industry

General heavy industry

Regional Commercial

Limited Manufacturing

Open Space

Public Facilities

Combined Annual Emissions Reports (Tons/Year)

File Name: R:\General Air Quality Info\Projects\100018607 - San Pedro New Community Plan EIR\Modeling\Urbemis\March 2011\San Pedro Existing - Hearth Only urh924

Project Name: San Pedro EIR - Existing - Hearth Only

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

TOTALS (tons/year, unmitigated) CO2
2,955.13

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

TOTALS (tons/year, unmitigated) CO2
2,955.13

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	<u>CO2</u>
Natural Gas	
Hearth	2,955.13
Landscape	
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	2,955.13

2030 URBEMIS Output

Combined Annual Emissions Reports (Tons/Year)

File Name: R:\General Air Quality Info\Projects\100018607 - San Pedro New Community Plan EIR\Modeling\Urbemis\March 2011\San Pedro 2030.urb924

Project Name: San Pedro EIR - 2030 TIMP

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

TOTALS (tons/year, unmitigated) CO2
108,619.13

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

TOTALS (tons/year, unmitigated) CO2
139,581.40

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

TOTALS (tons/year, unmitigated) CO2
248,200.53

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source CO2
Natural Gas 104,013.01

Hearth	4,472.39
Landscape	133.73
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	108,619.13

Area Source Changes to Defaults

The number of persons per household for consumer product use changed from 3 persons to 2.4 persons

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>CO2</u>
Single family housing	31,903.10
Apartments low rise	60,417.66
Apartments mid rise	12,397.49
Apartments high rise	8,884.33
Office park	3,399.97
Government office building	2,226.12
General light industry	4,548.64
General heavy industry	3,637.75
Industrial park	3,868.84
Regional Commercial	1,759.21
Hybrid Industrial	712.19
Open Space	1,152.10
Public Facilities	4,674.00

Operational Settings:

- Does not include correction for passby trips
- Does not include double counting adjustment for internal trips

Analysis Year: 2030 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	1,393.40	1.75	dwelling units	9,753.00	17,067.75	172,179.47
Apartments low rise	898.00	1.75	dwelling units	18,470.10	32,322.67	326,071.16
Apartments mid rise	69.50	1.75	dwelling units	3,790.00	6,632.50	66,908.66
Apartments high rise	40.90	1.75	dwelling units	2,716.00	4,753.00	47,948.27
Office park		1.15	1000 sq ft	1,561.09	1,795.25	18,397.76
Government office building		1.15	1000 sq ft	1,033.02	1,187.97	12,129.20
General light industry		1.15	1000 sq ft	2,087.34	2,400.44	24,604.52
General heavy industry		1.15	1000 sq ft	1,654.93	1,903.17	19,583.61
Industrial park		1.15	1000 sq ft	1,779.58	2,046.52	20,959.40
Regional Commercial		1.15	1000 sq ft	818.19	940.92	9,599.25
Hybrid Industrial		1.15	1000 sq ft	331.23	380.91	3,886.09
Open Space		1.15	1000 sq ft	535.83	616.20	6,286.52
Public Facilities		1.15	1000 sq ft	2,173.82	2,499.89	25,503.91
					74,547.19	754,057.82

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	49.4	0.0	100.0	0.0

Light Truck < 3750 lbs	7.3	0.0	100.0	0.0
Light Truck 3751-5750 lbs	23.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	11.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.8	0.0	83.3	16.7
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.7	33.3	66.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.1	0.0	90.9	9.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.1	10.0	10.1	10.3	10.2	10.2
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	30.6	12.0	57.4			
% of Trips - Commercial (by land use)						
Office park				48.0	24.0	28.0
Government office building				10.0	5.0	85.0
General light industry				50.0	25.0	25.0
General heavy industry				90.0	5.0	5.0

41.5	20.8	37.8
2.0	1.0	97.0
2.0	1.0	97.0
2.0	1.0	97.0
2.0	1.0	97.0

Regional Commercial

Hybrid Industrial

Open Space

Public Facilities

Combined Annual Emissions Reports (Tons/Year)

File Name: R:\General Air Quality Info\Projects\100018607 - San Pedro New Community Plan EIR\Modeling\Urbemis\March 2011\San Pedro 2030 - Hearth

Project Name: San Pedro EIR - 2030 TIMP - Hearth Only

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

TOTALS (tons/year, unmitigated) CO2 4,353.57

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

TOTALS (tons/year, unmitigated) CO2 4,353.57

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	<u>CO2</u>
Natural Gas	
Hearth	4,353.57
Landscape	
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	4,353.57

[Area Source Changes to Defaults](#)

Percentage of residences with natural gas fireplaces changed from 85% to 0%