

Amazing Facts  
Baseline and  
GHG-Reducing Project Components

**Baseline Summary**

<b>BAU GHGs Attributed to Project</b>	<b>MTCO2e</b>
Electricity	556.00
Area Source	400.00
Natural Gas	268.00
Vehicles	4,838.00
Solid Waste	33.00
Water-Wastewater	37.00
<b>TOTAL</b>	<b>6,132.00</b>

**Construction Emissions**

Pounds CO2e/day - Phase 1	6240
Pounds CO2e/day - Phase 2	2378

**Project Reductions Summary**

<b>Project Components</b>	<b>GHG Reduction</b>
1. Title 24	52.44
2. Building Component	4.12
3. Senate Bill 2X	117.32
4. Pavley I	766.19
5. Bicycle/Pedestrian/Transit	223.76
6. Parking	24.19
7. Site Design	72.57
<b>TOTAL</b>	<b>1,260.58</b>
Revised Project Emissions per year	4,871.42
% below BAU	-20.6%

**Project Component Detail**

**1. Title 24**

The project will at minimum meet the 2008 Title 24 standards, which reduce electricity by 4.9% below BAU and reduce natural gas by over 9.4% below BAU. The project could potentially be 15% more efficient than 2008 Title 24 Standards. According to CAPCOA, the project will achieve a 0.29% reduction in electricity and a 0.66% reduction in natural gas for each percentage above 2008 standards.

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GHG-Reducing Project Components

GHG Reduction: 52.44

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**2. Building Component**

The SJVAPCD Greenhouse Gas Emission Reduction Measure Tool estimates a 0.5% reduction for the following building component:

27. Energy Star Roof

GHG Reduction: 4.12

**3. Senate Bill 2X - Renewable Portfolio Standard**

PG&E BAU Renewable Mix (2008) 11.90%

PG&E Renewable Mix Under RPS (2020) 33%

GHG Reduction: 117.32

**4. Pavley I**

According to URBEMIS, 87.6% of vehicle trips are from passenger cars, light duty trucks, and medium duty trucks are subject to Pavley (AB 1493).

The Post-Processor tool provided by the Air Resources Board estimates a 18% reduction in GHG in these vehicle classes by 2020.

GHG Reduction: 766.1883

**5. Bicycle/Pedestrian/Transit**

The SJVAPCD Greenhouse Gas Emission Reduction Measure Tool estimates a 0.625% reduction for the following project components:

- 1. Bike Parking - Bicycle Lockers
- 2. End of Trip Facilities - Showers
- 4. Proximity to Bike Lanes

GHG Reduction: 90.7125

The SJVAPCD Greenhouse Gas Emission Reduction Measure Tool estimates a 0.25% reduction for the following project components:

- 8. Bus Shelter for Planned Transit

GHG Reduction: 12.095

The SJVAPCD Greenhouse Gas Emission Reduction Measure Tool estimates a 0.5% reduction for the following project components:

- 5a. Pedestrian Network - future

GHG Reduction: 24.19

Amazing Facts  
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GHG-Reducing Project Components

The SJVAPCD Greenhouse Gas Emission Reduction Measure Tool estimates a 1% reduction for the following project components:

- 5. Pedestrian Network - existing
- 6. Pedestrian Barriers Minimized

GHG Reduction: 96.76

**6. Parking**

The SJVAPCD Greenhouse Gas Emission Reduction Measure Tool estimates a 0.5% reduction for the following project components:

- 13. Pedestrian Pathway Through Parking

GHG Reduction: 24.19

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GHG-Reducing Project Components

**7. Site Design**

The SJVAPCD Greenhouse Gas Emission Reduction Measure Tool estimates a 0.5% reduction for the following project components:

16. Orientation Toward Existing Transit, Bikeway, or Pedestrian Corridor

GHG Reduction: 24.19

The SJVAPCD Greenhouse Gas Emission Reduction Measure Tool estimates a 1% reduction for the following project components:

31. Non Roof Surfaces

GHG Reduction: 48.38

Amazing Facts Phase 1 Construction-Generated  
Greenhouse Gas Emissions

<b>Project Action</b>	<b>CO2 (pounds)</b>	<b>Gallons of Diesel Fuel</b>	<b>N2O (grams)</b>	<b>N2O (pounds)</b>	<b>CH4 (grams)</b>	<b>CH4 (Pounds)</b>	<b>Total CO2e pounds/day</b>
<b>Construction - Phase 1</b>	6,184.00	276.37	72	0.158	160	0.353	<b>6,240.53</b>

Amazing Facts Phase 2 Construction-Generated  
Greenhouse Gas Emissions

<b>Project Action</b>	<b>CO2 (pounds)</b>	<b>Gallons of Diesel Fuel</b>	<b>N2O (grams)</b>	<b>N2O (pounds)</b>	<b>CH4 (grams)</b>	<b>CH4 (Pounds)</b>	<b>Total CO2e pounds/day</b>
Construction - Phase 2	2,357.00	105.34	27	0.060	61	0.135	<b>2,378.55</b>

Amazing Facts  
Area Source  
Greenhouse Gas Emissions

**Direct Emissions**

**Church**

**URBEMIS CO2 Output**

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Area Source

441 tons/year

0.907 metric ton/English ton

400 MT/yr



Amazing Facts  
Greenhouse Gas Emissions  
Net Energy Consumption

Land Use	Square Feet	Electricity Demand (kWh)		GHG
	Church Facilities	per SF	Church Facilities	MTCO2e
Church	208000	9.14	1901120	555.9702818
Total				555.9702818

Source: California Commercial End Use Survey, <http://www.energy.ca.gov/2006publications/CEC-400-2006-005/CEC-400-2006-005.PDF>.

Land Use	Square Feet	Natural Gas Demand (kBTU)		GHG	
	Church Facilities	per SF	Church Facilities	Therms Conversion	MTCO2e
Church	208000	24.11	5014880	50148.8	268.6315986
Total					268.6315986

Source: California Commercial End Use Survey, <http://www.energy.ca.gov/2006publications/CEC-400-2006-005/CEC-400-2006-005.PDF>.

Source: [http://www.energystar.gov/ia/business/tools\\_resources/target\\_finder/help/Energy\\_Units\\_Conversion\\_Table.htm](http://www.energystar.gov/ia/business/tools_resources/target_finder/help/Energy_Units_Conversion_Table.htm)

Total MTCO2e: 824.6018803

Conversion Factors	CO2	CH4	N2O
Electricity (MT/kWh)	0.00029076000	0.00000001315	0.00000000454
Natural Gas (MT/therm)	0.00530709000	0.00000110000	0.00000016000

Source: California Climate Action Registry, Local Government Operations Protocol v1.1.

Amazing Facts  
Greenhouse Gas Emissions Water / Wastewater

<b>Water Demand</b>	<b>Church Facilities</b>
Acre-Feet	64

Source: Section 14.0 Public Services

**Indirect Emissions**

*Indirect Emissions from Water Use (includes wastewater treatment)*

	<b>MG/yr</b>	<b>MWh/MG</b>	<b>MWh/yr</b>	<b>Total CO2e MT/yr</b>
<b>Church Facilities</b>	21	5.4	113	37

California Energy Commission. 2006. Redefining Estimates for Water-Related Energy Use (<http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF>)

Amazing Facts  
Greenhouse Gas Emissions Water / Wastewater

<b>Waste Generation</b>	<b>Church Facilities</b>
Tons/year	10

*Source: Section 14.0 Public Services*

**Indirect Emissions**

*Indirect Emissions from Solid Waste Decomposition*

	<b>CO2e MT/yr</b>
<b>Church Facilities</b>	31.74

*Bay Area Air Quality Management District. 2010. Bay Area Air Quality Management District Greenhouse Gas Model User's Manual*

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name:

Project Name: Amazing Facts - Solid Waste Hauling

Project Location: Placer County APCD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.97

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.97

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	CO2
Solid Waste Hauling	0.97
<b>TOTALS (tons/year, unmitigated)</b>	<b>0.97</b>

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 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
Solid Waste Hauling		1.84	unknown	1.00	1.84	1.84
					1.84	1.84

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.8	98.9	0.3
Light Truck < 3750 lbs	0.0	2.1	90.8	7.1
Light Truck 3751-5750 lbs	0.0	0.4	99.2	0.4
Med Truck 5751-8500 lbs	0.0	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	73.1	26.9
Lite-Heavy Truck 10,001-14,000 lbs	0.0	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	100.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	58.2	41.8	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	84.6	15.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	1.0	1.0	1.0	1.0	1.0	1.0
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)						
Solid Waste Hauling				2.0	1.0	97.0



Amazing Facts  
Vehicle  
Greenhouse Gas Emissions

**Direct Emissions**

<b>Church</b>	<b>URBEMIS CO2 Output</b>		
Mobile Source	5,334 tons/year	0.907 metric ton/English ton	4,838 MT/yr