

Existing Conditions: 2008

Butte County	Passanger Car	Light-Duty Truck1	Light-Duty Truck2	Medium Duty Truck	Light-Heavy-Duty Truck1	Light-Heavy-Duty Truck2	Medium-Heavy-Duty Truck	Heavy-Heavy-Duty Truck	Other Buses	Urban Buses	Motorcycle	School Bus	Motor homes	Total
VMT														
Gasoline	2,094,000	1,038,000	1,084,000	469,000	95,000	26,000	14,000	6,000	5,000	2,000	57,000	1,000	27,000	4,918,000
Diesel	11,000	99,000	8,000	5,000	59,000	30,000	61,000	345,000	1,000	3,000	-	6,000	3,000	631,000
Total	2,105,000	1,137,000	1,092,000	474,000	154,000	56,000	75,000	351,000	6,000	5,000	57,000	7,000	30,000	5,549,000
Gallons														
Gasoline	92,280	56,160	57,800	33,970	11,160	3,070	1,740	670	460	160	1,400	150	2,250	261,270
Diesel	400	3,400	270	170	3,080	1,630	9,170	65,320	200	750	-	940	440	85,770
Total	92,680	59,560	58,070	34,140	14,240	4,700	10,910	65,990	660	910	1,400	1,090	2,690	347,040

Source: ARB BURDEN2007 VMT and fuel consumption data for 2008 base year

Chico	Passanger Car	Light-Duty Truck1	Light-Duty Truck2	Medium Duty Truck	Light-Heavy-Duty Truck1	Light-Heavy-Duty Truck2	Medium-Heavy-Duty Truck	Heavy-Heavy-Duty Truck	Other Buses	Urban Buses	Motorcycle	School Bus	Motor homes	Total
VMT														
Gasoline	998,663	495,039	516,977	223,674	45,307	12,400	6,677	2,861	2,385	954	27,184	477	12,877	2,345,474
Diesel	5,246	47,215	3,815	2,385	28,138	14,307	29,092	164,536	477	1,431	-	2,861	1,431	300,934
Total	1,003,909	542,254	520,792	226,058	73,445	26,707	35,769	167,398	2,861	2,385	27,184	3,338	14,307	2,646,408
Gallons														
Gasoline	44,010	26,784	27,566	16,201	5,322	1,464	830	320	219	76	668	72	1,073	124,604
Diesel	191	1,622	129	81	1,469	777	4,373	31,152	95	358	-	448	210	40,905
Total	44,201	28,405	27,695	16,282	6,791	2,242	5,203	31,472	315	434	668	520	1,283	165,509

Future Conditions: 2030

Butte County	Passanger Car	Light-Duty Truck1	Light-Duty Truck2	Medium Duty Truck	Light-Heavy-Duty Truck1	Light-Heavy-Duty Truck2	Medium-Heavy-Duty Truck	Heavy-Heavy-Duty Truck	Other Buses	Urban Buses	Motorcycle	School Bus	Motor homes	Total
VMT														
Gasoline	3,457,000	1,891,000	1,722,000	719,000	161,000	51,000	25,000	6,000	2,000	3,000	94,000	1,000	46,000	8,178,000
Diesel	1,000	10,000	-	1,000	42,000	38,000	117,000	614,000	9,000	4,000	-	10,000	5,000	851,000
Total	3,458,000	1,901,000	1,722,000	720,000	203,000	89,000	142,000	620,000	11,000	7,000	94,000	11,000	51,000	9,029,000
Gallons														
Gasoline	141,490	97,150	90,570	51,390	18,590	5,880	2,150	480	200	260	2,260	130	3,570	414,120
Diesel	20	340	10	20	2,170	1,990	17,580	115,640	1,380	1,000	-	1,550	730	142,430
Total	141,510	97,490	90,580	51,410	20,760	7,870	19,730	116,120	1,580	1,260	2,260	1,680	4,300	556,550

Source: ARB BURDEN2007 VMT and fuel consumption data for 2035 horizon year

Chico	Passanger Car	Light-Duty Truck1	Light-Duty Truck2	Medium Duty Truck	Light-Heavy-Duty Truck1	Light-Heavy-Duty Truck2	Medium-Heavy-Duty Truck	Heavy-Heavy-Duty Truck	Other Buses	Urban Buses	Motorcycle	School Bus	Motor homes	Total
VMT														
Gasoline	1,359,192	743,486	677,040	282,690	63,301	20,052	9,829	2,359	786	1,180	36,958	393	18,086	3,215,352
Diesel	393	3,932	-	393	16,513	14,940	46,001	241,407	3,539	1,573	-	3,932	1,966	334,589
Total	1,359,585	747,418	677,040	283,083	79,814	34,992	55,830	243,766	4,325	2,752	36,958	4,325	20,052	3,549,941
Gallons														
Gasoline	55,630	38,197	35,609	20,205	7,309	2,312	845	189	79	102	889	51	1,404	162,820
Diesel	8	134	-	8	853	782	6,912	45,466	543	393	-	609	287	55,995
Total	55,638	38,330	35,609	20,213	8,162	3,094	7,757	45,655	621	495	889	661	1,691	218,815

Without Pavley

With Pavley, reduction in emission from LDA, LDT1, LDT2, and MDV

Post 2016 LDA and LDT1 fuel economy of 39.9; LDT2 and MDV fuel economy of 25.2

Gallons														
Gasoline	34,065	18,634	26866.6853	11217.855	7,309	2,312	845	189	79	102	889	51	1,404	103,962
Diesel	10	99	0	15.602024	853	782	6,912	45,466	543	393	-	609	287	55,970
Total	34,075	18,732	26,867	11,233	8,162	3,094	7,757	45,655	621	495	889	661	1,691	159,932

Source: http://www.eia.doe.gov/oiaf/aeo/otheranalysis/aeo_2005analysispapers/pdf/tbl10.pdf

**City of Chico General Plan Update
GHG Emission Calculations**

Land Use	Dwelling Units (DU) / Square Feet (SF)		Electricity Demand (kWh) per unit	Electricity Demand (kWh)	
	2008	2030		2008	2030
Residential (DU)	41,438	62,933	6,992	289,734,496	440,027,536
Commercial (SF)	9,167,755	15,004,304	14.3	131,098,897	214,561,547
Office (SF)	3,476,055	5,237,649	17.3	60,135,752	90,611,328
Hospital	453,456	453,456	27.5	12,470,040	12,470,040
Other	2,093,948	2,277,697	22.5	47,113,830	51,248,183
Industrial (SF)	10,650,592	18,631,378	7.6	80,944,499	141,598,473

Sources:

Energy Information Administration. 2005. <http://www.eia.doe.gov/emeu/recs/recs2005/c&e/summary/pdf/tableus8.pdf> (Accessed April 2010)

Energy Information Administration. 2006. http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set10/2003pdf/c14.pdf (Accessed April 2010)

Land Use	Dwelling Units (DU) / Square Feet (SF)		Natural Gas Demand (converted to kWh) per unit	Natural Gas Demand (converted to kWh)	
	2008	2030		2008	2030
Residential (DU)	41,438	62,933	13,540	561,070,520	852,112,820
Commercial (SF)	9,167,755	15,004,304	9.2	84,343,346	138,039,597
Office (SF)	3,476,055	5,237,649	9.5	33,022,523	49,757,666
Hospital	453,456	453,456	32.9	14,918,702	14,918,702
Other	2,093,948	2,277,697	20.2	42,297,750	46,009,479
Industrial (SF)	10,650,592	18,631,378	7.0	74,554,144	130,419,646

Sources:

Energy Information Administration. 2005. <http://www.eia.doe.gov/emeu/recs/recs2005/c&e/summary/pdf/tableus9.pdf> (Accessed April 2010)

Energy Information Administration. 2006. http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set11/2003pdf/c24.pdf (Accessed April 2010)

Water Demand	2008	2030
Acre-Feet	32,917	55,029

Source: Section 4.12 Public Services and Utilities

Direct Emissions

2008	URBEMIS CO2 Output	Conversion Factor	Total CO2 Emissions
Area Source	178,304 tons/year	0.907 metric ton/English ton	161,722 MT/yr
Mobile Source	534,016 tons/year	0.907 metric ton/English ton	484,353 MT/yr
2030	URBEMIS CO2 Output	Conversion Factor	Total CO2 Emissions
Area Source	275,426 tons/year	0.907 metric ton/English ton	249,811 MT/yr
Mobile Source	682,362 tons/year	0.907 metric ton/English ton	618,902 MT/yr

Indirect Emissions

Indirect Emissions from Electricity and Natural Gas Consumption

	CO2 Emissions			CH4 Emissions		N2O Emissions		Total CO2e MT/yr
	MWh/yr	lb/MWh	GWP	lb/MWh	GWP	lb/MWh	GWP	
2008	1,431,704	724.12	1	0.03020	23	0.0081	296	472,260
2030	2,181,775	724.12	1	0.03020	23	0.0081	296	719,677

Indirect Emissions from Water Use

	MG/yr	MWh/MG	MWh/yr	Total CO2e MT/yr
2008	10,728	3.95	42,374	13,977
2030	17,934	3.95	70,839	23,367

2008 Total Direct and Indirect Long-Term Emissions

1,132,311 CO2e metric tons per year

2030 Total Direct and Indirect Long-Term Emissions

1,611,757 CO2e metric tons per year

Sources:

California Climate Action Registry. 2009. General Reporting Protocol v 3.1.

California Energy Commission. 2005. California Energy - Water Relationship Staff Report. <http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF>

(Accessed January 2010)

	Service			
	Population	Employment	Population (SP)	MT CO2e/SP
2008	99,451	42,884	142,335	7.96
2030	151,039	68,466	219,505	7.34

AB 32 2020 Goal GHG emissions (metric tons CO2e) per Service Population

6.6

Source: Bay Area Air Quality Management District. 2009. California Environmental Quality Act Guidelines Update: Proposed Thresholds of Significance.

<http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Proposed%20Thresholds%20of%20Significance%20Dec%207%202009.ashx> (Accessed January 2010)