

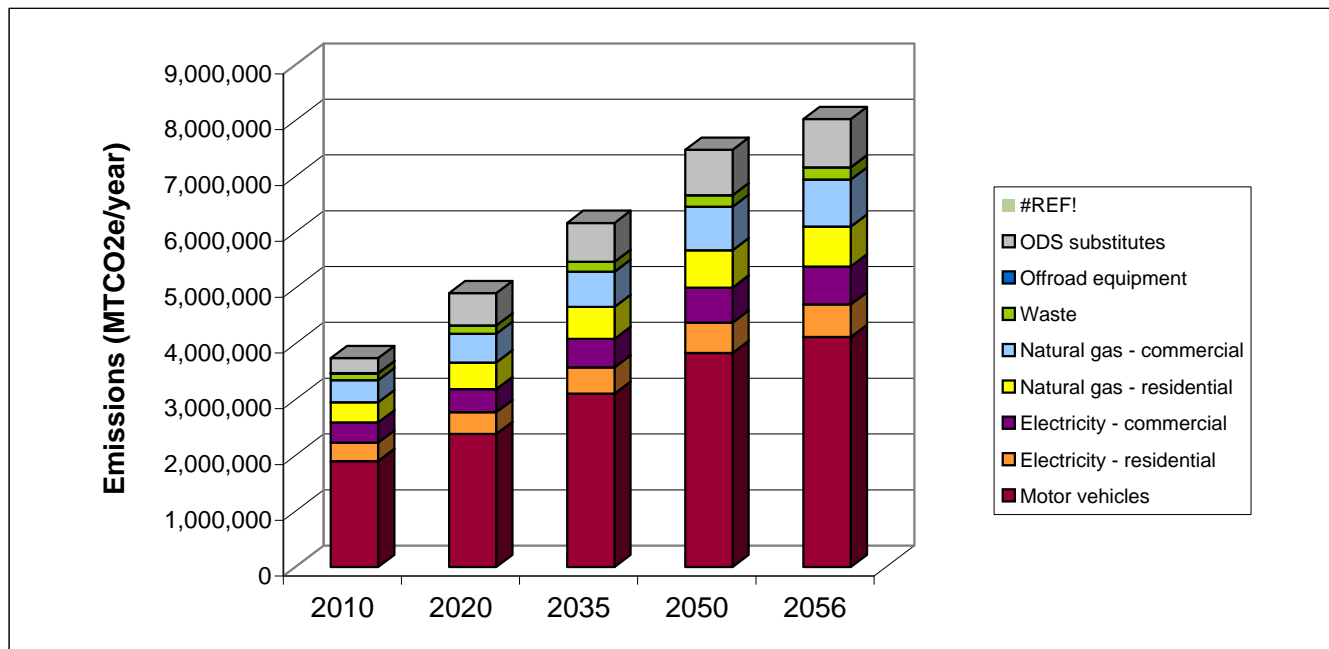
F.1 - Greenhouse Gas Emission Reduction and Modeling Results

Community Greenhouse Gas Business as Usual Inventory

Summary

Prepared by Michael Brandman Associates

Source	2010	2020	2035	2050	2056
Motor vehicles	1,899,799	2,383,023	3,107,859	3,832,694	4,122,629
Electricity - residential	327,813	390,488	469,524	548,921	583,447
Electricity - commercial	361,836	415,012	509,781	626,137	679,888
Natural gas - residential	362,832	476,679	573,160	670,082	712,228
Natural gas - commercial	394,417	514,647	632,169	776,459	843,115
Waste	123,945	147,628	177,508	207,525	220,578
Offroad equipment	1,051	1,138	1,314	1,314	1,314
ODS substitutes	273,422	576,784	694,734	812,214	863,300
Total	3,745,115	4,905,399	6,166,049	7,475,346	8,026,499



Emission Reduction from Local Measures

	2020 BAU	2020 w/Pavley I	2020 w/LEV III and Other Regs	Reduction from BAU
Mobile Source Emissions				
Motor Vehicles	2,383,023.0	1,828,249.0	1,745,490.1	637,532.9
Reduction		554,774.0		26.75%

Reductions from Land Use Strategy 2020

	Reduction Percentage	Emissions MTCO _{2e}
2020 Lt Duty Vehicle Emissions without Local Measures		1,069,681.4
SB 375 Land Use Strategy	4.70%	50,275
Emissions after reduction		1,019,406

Source: ARB Staff Report Update on Senate Bill 375 Implementation in the San Joaquin Valley, January 15, 2013

Reductions from TDM

	Percentage Reduction	Emissions MTCO _{2e}
2020 Lt Duty Emissions with SB 375		1,069,681.4
Rule 9410 TDM Emission Reductor	1.60%	17,115
Emissions after reduction		1,052,567

Source: SJVAPCD 2012 Rule 9410 Staff Report

Reductions include increases in travel by carpool, vanpool, transit, bicycling, and walking for commute trips

2035 Emission Emissions without Local Measures

Mobile Source Emissions	2035 BAU	2035 w/Pavley I	2035 w/LEV III and Other Regs	Reduction
Motor Vehicles	3,107,859.0	2,205,408.7	1,782,755.6	1,325,103.4
Reduction		902,450.3		42.64%

Reductions from Land Use Strategy 2035

	Reduction Percentage	Emissions MTCO₂e
2035 Light Duty Emissions without Local Measures		1,075,445.3
SB 375 Land Use Strategy	7.60%	81,734
Lt Duty Emissions after reduction		993,711

Source: ARB Staff Report Update on Senate Bill 375 Implementation in the San Joaquin Valley, January 15, 2013

Reductions from TDM 2035

	Percentage Reduction	Emissions MTCO₂e
2035 Emissions with SB 375		1,075,445.3
Rule 9410 TDM Emission Reductor	1.60%	17,207
Lt Duty Emissions after reduction		1,058,238

Source: SJVAPCD 2012 Rule 9410 Staff Report

Reductions include increases in travel by carpool, vanpool, transit, bicycling, and walking for commute trips

Water Use	Population	Water Use (gal/day)	Mgal/Day	Mgal/year	20% Reduction	25% Reduction
Per capita water use 2009 (gal)		275				
Population 2010	545,000	149,875,000	149.88	54,704.4		
Population 2020	649,200	178,530,000	178.53	65,163.5	13,032.7	
Population 2035	780,600	214,665,000	214.67	78,352.7		19,588.2
Population 2050	912,600	250,965,000	250.97	91,602.2		22,900.6
Population 2056	970,000	266,750,000	266.75	97,363.8		24,340.9

Electric Intensity Factors	kWh/mgal	2020 Energy Savings (kWh)	2035 Energy Savings (kWh)
Supply	2,117	27,590,205	41,468,180
Treatment	111	1,446,629	2,174,288
Distribution	1,272	16,577,582	24,916,167
Total		45,614,415	68,558,634

Emission Reductions from Water Use	PG&E Emissions Rate (MTCO2/MWh)	Emission Reductions (MTCO2e)
2020 Reductions	0.131	5,975.5
2035 Reductions	0.131	8,981.2

Project Reduction Potential From Land Use and Transportation Measures

		Reduction	Global Maximum	Global Max
		Range (percent)	Suburban (percent)	Suburban
Land Use and Transportation				Center
				(percent)
Compact Development	LUT-1, LUT-2	1.5 to 30		
Mixed Use Development	LUT-3	9 to 30		
Pedestrian Orientation	LUT-4, TST-2	6.7 to 20		
Bicycle Infrastructure	LUT-8, TST-5	Not quantified		
Transit Service Enhancements	TST-3, TST-4	0.02 to 8.2		
TDM Programs at Commercial	TRT-1, TRT-2, TRT-3	1 to 21		
	TRT-4 through TRT-11, TRT-14,			
TDM Measures at Comm	TRT-15	0.3 to 21		
Maximum Combined Reduction			15	20

Source: Reductions from CAPCOA 2010

Energy Related

Exceed Title 24	1-100
Water Conservation	1-20
Solid Waste Reduction	
Alternative Energy Gen	0-100

Programs for Existing Sources

Infrastructure benefiting Existing Development	
Improve Traffic Flow	RPT-2 0-45

This information represents the range of reductions that can be achieved by individual projects implementing the General Plan

Source: CAPCOA 2010 Table 6.2

Solid Waste		
Reductions from Diversion and Recycling		
		Per Capita (lbs/day)
2005 Waste Generation (tons)	505,910	6.6
2010 Waste Generation (tons)	333,098	3.7
Emissions MTCO ₂ e	123,945	
Emission Rate (MTCO ₂ e/ton)	0.37	
2020 Target (75% Diversion) tons		1.65
2020 Emission at 75% Diversion		1.65

	Population	Target	Waste Gen (lbs/day)	Waste Gen (tons/year)	Waste Emissions MTCO ₂ e	BAU Emissions MTCO ₂ e	Emission Reduction MTCO ₂ e
Population 2020	649,200	1.65	1,071,180	195,490	72,742	147,628	74,886
Population 2035	780,600	1.65	1,287,990	235,058	87,465	177,508	90,043
BAU Emissions							

Local Reduction Summary			
Sector		2020 (MTCO₂e)	2035 MTCO₂e
Motor Vehicles	Land Use and Transportation Str	50,275	81,734
	TDM (Rule 9410)	17,115	17,207
	Subtotal	67,390	98,941
Electricity	Water Conservation	5,975	8,981
	Subtotal	5,975	8,981
Waste	75% Waste Diversion Target	74,886	90,043
	Subtotal	74,886	90,043
Total all Sectors		148,252	197,966

Per Capita Emission			
2020 BAU	4,905,399		
2020 Adj BAU	3,591,513		
2020 Local Reductions	148,252		
2020 w/all Reductions	3,443,261	5.30	
Percent Reduction from BAU	29.81%		

Per Capita Emissions			
2035 BAU	6,166,049		
2035 Adj BAU	3,881,781		
2035 Local Reductions	197,966		
2035 w/all Reductions	3,683,815	4.72	
Percent Reduction from BAU	40.26%		
2035 Interim Target	3,699,629	4.74	
Additional Reductions Needed	-15,814	-0.02	

Reductions from State Measures**Targets based on State Reductions for AB 32**

State Inventory 2010 MTCO ₂ e	451.6
New State Inventory 2020 BAU MTCO ₂ e	545.0
State Inventory 2020 Reduced MTCO ₂ e	507.0
AB 32 target - 1990 EI MTCO ₂ e	427.0
Reductions Required from BAU MTCO ₂ e	118.0
Percent Reduction Rqd BAU	21.7
Reduction from 2010	24.6
Percent Reduction from 2010	5.4

2020 Emission Reduction Calculations

	Emissions	Population	Per Capita	Reduction
Fresno 2010 Inventory	3,745,116	545,000	6.87	
Fresno 2020 BAU Inventory	4,905,399	649,200	7.56	
Fresno 2020 Target	3,843,313	649,200	5.92	21.65%
Reduction Required from BAU	1,062,086			
Reductions Achieved	1,313,886			
Emissions with Reductions	3,591,513		5.53	26.78%

Offroad Emissions Alternative Estimate using State Inventory for 2010

California 2010 MTCO _{2e}	2,030,000
California Population	37,309,404
Per Capita Emissions	
MT/Person/Year	0.054
Fresno Population 2010	545,000
Fresno Offroad Emissions	29,653.4

	2020 BAU	2020 w/Pavley I	2020 w/LEV III and Other Regs	Reduction from BAU
Mobile Source Emissions				
Motor Vehicles	2,383,023.0	1,828,249.0	1,748,773.1	634,250
Reduction		554,774.0	79,475.9	26.62%

Fleet VMT Fractions in 2020	CO ₂ tons/year	MTCO _{2e} /year
Gasoline Vehicles		
LDA	0.436	701,792.9
LDT1	0.064	118,436.2
LDT2	0.163	356,767.2
Total	0.663	1,176,996.3
LEV III 2020 Reduction 3%		35,309.9
Diesel Vehicles		
LDA	0.0012	1,856.6
LDT1	0.0001	131.0
LDT2	0.0001	118.2
Total	0.0014	2,105.8
LEV III 2020 Reduction 3%		63.2
Total Inventory 2020	1,179,102.1	1,069,681.4
LEV III 2020 Reduction 3%		32,090.4
ARB estimate of LEV Reductions from 2016 to 2020		

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	1,179,102.1	1,069,681.4	1,069,681.4

Vehicle Efficiency Measures

Heavy Duty Aerodynamic Improvement 2020 Reductions

California Reductions in MMT CO2e	0.93	
California 2020 BAU EI Transportation	225.3	
Percent Reduction in Transportation	0.0041	
Fresno 2020 BAU Transportation EI in MTCO2e	2,383,023.0	
Reduction in HD emissions MTCO2e	9,836.7	

Med/HDT Hybridization 2020 Reductions

California Reductions in MMT CO2e	0.5	
California 2020 BAU EI Transportation	225.3	
Percent Reduction in Transportation	0.0022	
Fresno 2020 BAU Transportation EI in MTCO2e	2,383,023.0	
Reduction in HD emissions MTCO2e	5,288.6	15,125.3

Light Duty Vehicle Efficiency Measures 2020 Reductions Fresno Reduction MTCO2e

Tire Pressure Regulation	0.55	5,817.4
Tire Tread Standard	0.3	3,173.1
Low Friction Oil	2.2	23,269.6
Total	3.05	32,260.2
California 2020 BAU EI Transportation	225.3	
Percent Reduction in Transportation	0.013537506	
Fresno 2020 BAU Transportation EI in MTCO2e	2,383,023.0	
Reduction from Vehicle Efficiency Measures in MTCO2e	32,260.2	
Total Reductions all Measures	47,385.5	

Mobile Reductions Summary

	MTCO2e/ year
LEV III	32,090.4
Vehicle Efficiency	47,385.5
	79,475.9

Energy Emissions

	2020 EI MTCO2e	2020 w/RPS	RPS Reduction
2020 Electricity Residential	390,488	226,011	164,477
2020 Electricity Commercial	415,012	240,205	174,807
Total	805,500	466,216	339,284

	2020 MTCO2e	T24 Reductions	2020 w/T24
2020 Natural Gas Residential	476,679	7,983	468,696
2020 Natural Gas Commercial	514,647	17,530	497,117
	991,326	25,513	965,813

PG&E Portfolio

	Percent
2010 Percentage	17.7
2020 Mandate Percentage	33
Reduction	15.3
Included in Emission Factor from PG&E in spreadsheets	

Title 24 Reductions 2008 and 2013 Updates

	2020 BAU MTCO ₂ e	2010 BAU MTCO ₂ e	Increase 2010 to 2020	Emission Reduction
Electricity Residential	390,488	327,813	62,675	16,833
Electricity Commercial	415,012	361,836	53,176	9,614
Total	805,500	689,649	115,851	26,447
Natural Gas Residential	476,679	362,832	113,847	7,983
Natural Gas Commercial	514,647	394,417	120,230	17,530
Title 24 Totals	991,326	757,250	234,076	51,960

Commercial reductions include 3 years reductions at 2008 standard and 7 years at 2013 standard.

2008 Title 24 Fresno Residential Development Projections Electricity

	Fraction	Emissions by LU	Reduction Fraction	MTCO ₂ e
Single Family	0.461	8,659	0.227	1,966
Multi-Family	0.539	10,143	0.197	1,998
Total 2020 Residential Electricity Reductions				3,964

2008 Title 24 Fresno Residential Development Projections Natural Gas

	Fraction	Emissions by LU	Reduction Fraction	MTCO ₂ e
Single Family	0.461	15,729	0.1	1,573
Multi-Family	0.539	18,425	0.07	1,290
Total 2020 Residential Natural Gas Reductions				2,863

2008 Standards provide reductions from 2010-2013
Reductions from CEC 2008

2013 Title 24 Fresno Residential Development Projections Electricity

	Fraction	Emissions by LU	Reduction Fraction	MTCO ₂ e
Single Family	0.461	20,204	0.364	7,354
Multi-Family	0.539	23,668	0.233	5,515
Total 2020 Residential Electricity Reductions				12,869

2013 Title 24 Fresno Residential Development Projections Natural Gas

	Fraction	Emissions by LU	Reduction Fraction	MTCO ₂ e
Single Family	0.461	36,701	0.065	2,386
Multi-Family	0.539	42,992	0.038	1,634
Total 2020 Residential Natural Gas Reductions				4,019

Emission Reductions from CEC 2012 Impact Analysis of 2013 T24 Standards
Reductions based on development from 2014-2020.

7/20/2014

	2020 Adj EI MTCO ₂ e	Title 24 Reductions	2020 EI W/T24	2020 BAU	Reduction from BAU
2020 Electricity Residential	226,011	16,833	209,178	390,488	181,310
2020 Electricity Commercial	240,205	9,614	230,591	415,012	184,421
Total	466,216	26,447	439,769		
2020 Nat Gas Residential	476,679	7,983	468,696	476,679	7,983
2020 Nat Gas Commercial	514,647	17,530	497,117	514,647	17,530
Total	991,326	25,513	965,813		

Ozone Depleting Substances

	MTCO ₂ e
2020 BAU Emissions	576,784
ARB Refrigerant Management Program Reduction 50%	0.5
2020 Reduction	288,392

Emission reductions estimates from ARB Appendix B. California Facilities and GHG Emissions Inventory
High Global Warming Potential Stationary Source Refrigerant Management Program

<i>Emissions (MTCO₂e/year)</i>	2020 BAU	Reductions in 2020	Adj BAU 2020	Percent Reduction
Motor vehicles	2,383,023	634,250	1,748,773	26.62%
Electricity - residential	390,488	181,310	209,178	46.43%
Electricity - commercial	415,012	184,421	230,591	44.44%
Natural gas - residential	476,679	7,983	468,696	1.67%
Natural gas - commercial	514,647	17,530	497,117	3.41%
Waste	147,628	0	147,628	0.00%
Offroad equipment	1,138	0	1,138	0.00%
ODS substitutes	576,784	288,392	288,392	50.00%
<i>Total</i>	4,905,399	1,313,886	3,591,513	26.78%

BAU assumes 2005 emission rates to eliminate the effect of controls

Source Group	State Measures	Emissions (MTCO ₂ e/year)	
		2020	
Motor vehicles	Pavley and Low Carbon Fuel Standard	554,774	
	Low Emission Vehicle Program III	32,090	
	Tire Tread Program	3,173	
	Tire Pressure Program	5,817	
	Low Friction Oil	23,270	
	Aerodynamic Efficiency/Hybridization	15,125	
	Subtotal		634,250
Electricity - residential	Renewable Portfolio Standards	164,477	
	Title 24 Energy Efficiency Standards	16,833	
Electricity – commercial	Renewable Portfolio Standards	174,807	
	Title 24 Energy Efficiency Standards	9,614	
	Subtotal		365,731
Natural Gas-Residential	Title 24 Energy Efficiency Standards	7,983	
Natural Gas-Commercial	Title 24 Energy Efficiency Standards	17,530	
	Subtotal		25,513
Ozone depleting substance substitutes	Limit High GWP Use in Consumer Products; Motor Vehicle Air Conditioning; High GWP Refrigerant Management Program for Stationary Sources	288,392	
	Total		1,313,886
Source: Michael Brandman Associates			

Emission Summary BAU and Regulations All Years

Business as Usual Modeling Results

	2010 BAU	2020 BAU	2035 BAU	2050 BAU	2056 BAU
Motor vehicles	1,899,799	2,383,023	3,107,859	3,832,694	4,122,629
Electricity - residential	327,813	390,488	469,524	548,921	583,447
Electricity - commercial	361,836	415,012	509,781	626,137	679,888
Natural gas - residential	362,832	476,679	573,160	670,082	712,228
Natural gas - commercial	394,417	514,647	632,169	776,459	843,115
Waste	123,945	147,628	177,508	207,525	220,578
Offroad equipment	1,051	1,138	1,314	1,314	1,314
ODS substitutes	273,422	576,784	694,734	812,214	863,300
<u>Total</u>	<u>3,745,116</u>	<u>4,905,399</u>	<u>6,166,049</u>	<u>7,475,346</u>	<u>8,026,498</u>

Per Capita Emissions 7.556067612 7.89911452

Adjusted Business as Usual Modeling RPS Pavley I LFS

	2010 Ajd	2020 Adj	2035 Adj	2050 Adj	2056 Adj
Motor vehicles	1,795,666	1,828,249	2,205,409	2,711,894	2,914,488
Electricity - residential	289,745	226,011	271,756	317,710	337,694
Electricity - commercial	319,817	240,205	295,057	362,433	393,513
Natural gas - residential	400,169	476,679	519,166	670,082	712,228
Natural gas - commercial	448,706	514,647	564,560	776,525	843,115
Waste	123,945	147,628	177,508	207,525	220,578
Offroad equipment	1,051	1,138	1,314	1,314	1,314
ODS substitutes	273,422	576,784	694,734	812,214	863,300
<u>Total</u>	<u>3,652,521</u>	<u>4,011,341</u>	<u>4,729,504</u>	<u>5,859,698</u>	<u>6,286,229</u>

Adjusted BAU with Off Model Reductions from Title 24 and LEV III

	2010 Ajd	2020 Adj	2035 Adj	2050 Adj	2056 Adj
Motor vehicles	1,795,666	1,748,773	1,745,843	2,711,894	2,914,488
Electricity - residential	289,745	209,178	258,766	317,710	337,694
Electricity - commercial	319,817	230,591	290,861	362,433	393,513
Natural gas - residential	400,169	468,696	506,670	670,082	712,228
Natural gas - commercial	448,706	497,117	553,452	776,525	843,115
Waste	123,945	147,628	177,508	207,525	220,578
Offroad equipment	1,051	1,138	1,314	1,314	1,314
ODS substitutes	273,422	288,392	347,367	406,107	431,650
<u>Total</u>	<u>3,652,521</u>	<u>3,591,513</u>	<u>3,881,781</u>	<u>5,453,591</u>	<u>5,854,579</u>

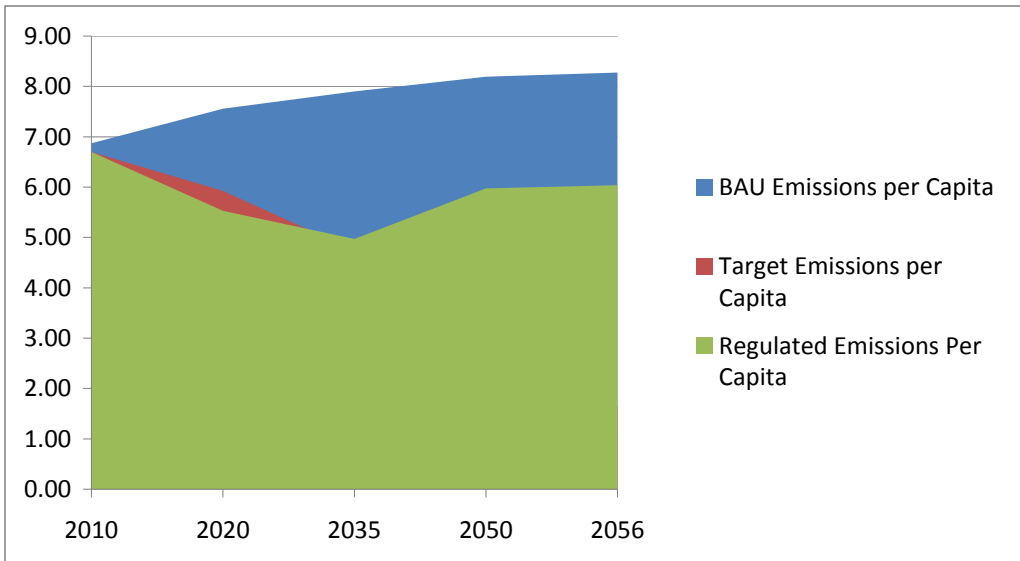
Per Capita Emissions 6.70 5.53 4.97 5.98 6.04

Target Inventories

	2010	2020	2035	2050	2056
BAU Inventory	3,745,116	4,905,399	6,166,049	7,475,346	8,026,498
Target Inventories	3,495,422	3,843,380	3,699,629	1,495,069	1,605,300
Inventories with Regulations	3,652,521	3,591,513	3,881,781	5,453,591	5,854,579

Planning Area Population	545,000	649,200	780,600	912,600	970,000
--------------------------	---------	---------	---------	---------	---------

	2010	2020	2035	2050	2056
BAU Emissions per Capita	6.87	7.56	7.90	8.19	8.27
Target Emissions per Capita	6.70	5.92	4.74	1.64	1.65
Regulated Emissions Per Capita	6.70	5.53	4.97	5.98	6.04



2020 Target	21.6 percent below 2020 BAU
2035 Target	40 percent below 2020 Target (1990 levels)
2050 Target	80 percent below 2020 Target (1990 levels)

2035 Emission Reduction Estimates

	2035 BAU	2035 w/Pavley I	2035 w/LEV III and Other Regs	Reduction
Mobile Source Emissions				
Motor Vehicles	3,107,859.0	2,205,408.7	1,745,842.7	1,362,016.3
Reduction		902,450.3		43.82%

LEV III Reduction Estimates

Gasoline Vehicles	Fleet VMT Fractions in 2035		MTCO ₂ e tons/year	2035 Emfac Fleet Fractions		
					GAS	DSL
LDA	0.439		968,384.4	LDA	0.439	0.001
LDT1	0.065		143,734.1	LDT1	0.065	0.000
LDT2	0.162		358,158.0	LDT2	0.162	0.000
Total	0.667		1,470,276.5			
LEV III 2035 Gas Reduction 27%			396,974.7			

Diesel Vehicles

LDA	0.001	2,584.1
LDT1	0.000	190.7
LDT2	0.000	161.4
Total	0.0013	2,936.2
LEV III 2035 Diesel Reduction 27%		792.8
Total Light Duty Cars and Trucks with LEV III		1,075,445.3

LEV Reductions in 2035 **397,767.4**

	MTCO ₂ e/ year
LEV III Reduction	397,767.4

Vehicle Efficiency Measures

Heavy Duty Aerodynamic Improvement 2035 Reductions

California Reductions in MMT CO2e	0.93
California 2020 BAU EI Transportation	225.3
Percent Reduction in Transportation	0.0041
Fresno 2035 BAU Transportation EI in MTCO2e	3,107,859.0
Reduction in HD emissions MTCO2e	12,828.7

Med/HDT Hybridization 2035 Reductions

California Reductions in MMT CO2e	0.5	
California 2020 BAU EI Transportation	225.3	
Percent Reduction in Transportation	0.0022	
Fresno 2035 BAU Transportation EI in MTCO2e	3,107,859.0	
Reduction in HD emissions MTCO2e	6,897.2	19,725.9

Light Duty Vehicle Efficiency Measures	2035 Reductions	Fresno Reduction MTCO2e
---	------------------------	--------------------------------

Tire Pressure Regulation MMTCO2e	0.55	7,586.9
Tire Tread Standard MMTCO2e	0.3	4,138.3
Low Friction Oil MMTCO2e	2.2	30,347.5
Total (MMTCO2e)	3.05	42,072.7
California 2020 BAU EI Transportation MMTCO2e	225.3	
Percent Reduction in Transportation	0.013537506	
Fresno 2035 BAU Transportation EI in MTCO2e	3,107,859.0	
Reduction from Vehicle Efficiency Measures in MTCO2e	42,072.7	
Total Reductions all Measures	61,798.5	

Reduction based on ARB Scoping Plan reductions from Efficiency Measures

Total Reductions for Motor Vehicles **1,362,016.3**

Energy Emissions						
Electricity	2035 EI MTCO₂e	2035 w/RPS	RPS Reduction	T24 Reduction	Total Reduction	
2035 Electricity Residential	426,350	271,576	154,774	12,810	167,584	
2035 Electricity Commercial	455,261	295,057	160,204	4,196	164,400	
Total	881,611	566,633	314,978		331,985	

Reduction estimates from inventory spreadsheets and CEC Title 24 Report for 2008 and 2013

Natural Gas			
	2035 MTCO₂e	T24 Reductions	2035 w/T24
2035 Natural Gas Resident	519,166	12,496	506,670
2035 Natural Gas Commercial	564,560	11,108	553,452
	1,083,726	23,603	1,060,123

Reduction estimates from inventory spreadsheets and CEC Title 24 Reports for 2008 and 2013

Title 24 Reductions							
	2010 MTCO₂e	2035 MTCO₂e	Increase 2010 to 2035	Emission Reduction	Residential	Commercial	
Electricity Residential	205,228	271,576	66,348	12,810	12,810		
Electricity Commercial	219,145	295,057	75,912	4,196		4,196	
Total	424,373	566,633	142,260	17,007			
Natural Gas Residential	431,774	519,166	87,392	12,496	12,496		
Natural Gas Commercial	469,526	564,560	95,034	11,108		11,108	
Title 24 Totals	901,300	1,083,726	182,426	23,603	25,306	15,304	

2008 Title 24 Fresno Residential Development Projections Electricity

Fraction	Emissions by LU Reduction Fraction MTCO₂e			
Single Family	0.461	3,667	0.227	832
Multi-Family	0.539	4,295	0.197	846
Total 2020 Residential Electricity Reductions				1,678

2008 Title 24 Fresno Residential Development Projections Natural Gas

	Fraction	Emissions by		Reduction Fraction	MTCO2e
		LU			
Single Family	0.461	4,830		0.1	483
Multi-Family	0.539	5,657		0.07	396
Total 2020 Residential Natural Gas Reductions					879

2008 Standards provide reductions from 2010-2013
 Reductions from CEC 2008

2013 Title 24 Fresno Residential Development Projections Electricity

	Fraction	Emissions by LU		Reduction Fraction	MTCO2e
Single Family	0.461	26,888		0.25	6,722
Multi-Family	0.539	31,498		0.14	4,410
Total 2035 Residential Electricity Reductions					11,132

2013 Title 24 Fresno Residential Development Projections Natural Gas

	Fraction	Emissions by		Reduction Fraction	MTCO2e
		LU			
Single Family	0.461	35,417		0.2	7,083
Multi-Family	0.539	41,488		0.09	3,734
Total 2035 Residential Natural Gas Reductions					10,817

Emission Reductions from CEC 2012
 Reductions based on development from 2014-2035.

	Title 24		
	2035 EI MTCO2e w/RPS	Reductions	2035 EI W/T24
2035 Electricity Residential	271,576	12,810	258,766
2035 Electricity Commercial	295,057	4,196	290,861
Total	566,633	17,007	549,626

Ozone Depleting Substances

	MTCO2e
2035 BAU Emissions	694,734
ARB Refrigerant Management Program Reduction 50%	0.5
2035 Reduction	347,367

Emission reductions estimates from ARB Appendix B. California Facilities and GHG Emissions Inventory High Global Warming Potential Stationary Source Refrigerant Management Program

Emission Reduction Summary

	<i>Emissions (MTCO2e/year)</i>			Percent Reduction
	2035 BAU	Reductions in 2035	Adj BAU 2035	
Motor vehicles	3,107,859	1,362,016	1,745,843	43.82%
Electricity - residential	469,524	167,584	301,940	35.69%
Electricity - commercial	509,781	164,400	345,381	32.25%
Natural gas - residential	573,160	12,496	560,664	2.18%
Natural gas - commercial	632,169	11,108	621,061	1.76%
Waste	177,508	0	177,508	0.00%
Offroad equipment	1,314	0	1,314	0.00%
ODS substitutes	694,734	347,367	347,367	50.00%
<u>Total</u>	6,166,049	2,064,971	4,101,078	33.49%

Transportation and Distribution Losses

Business as Usual Modeling Results

	2010 BAU	2020 BAU	2035 BAU	2050 BAU	2056 BAU
Electricity - residential	297,705	354,581	426,350	498,446	529,796
Electricity - commercial	317,868	378,626	455,261	532,246	565,723
Total E	615,573	733,207	881,611	1,030,692	1,095,519
T&D Loss	42,105	50,151	60,302	70,499	74,934

Adjusted Business as Usual Modeling RPS Pavley I LFS

	2010 Adj	2020 Adj	2035 Adj	2050 Adj	2056 Adj
Electricity - residential	263,134	205,228	246,767	288,496	306,641
Electricity - commercial	280,954	219,145	263,501	308,059	327,435
Total E	544,088	424,374	510,268	596,555	634,076
T&D Loss	37,216	29,027	34,902	40,804	43,371

T&D Loss for Western Region in 2010 is 6.84%

No rates were found for future years, so assumed constant rate.

T&D losses are expected to decline with increases in local production from solar or other distributed generation.

Community Greenhouse Gas Inventory

Summary

Year: 2010

Prepared by FirstCarbon Solutions

	Data	Source
City Information		
Population	545,000	Fresno COG
Employment	209,261	Census 2011

County Information		
Population	930,000	Fresno COG

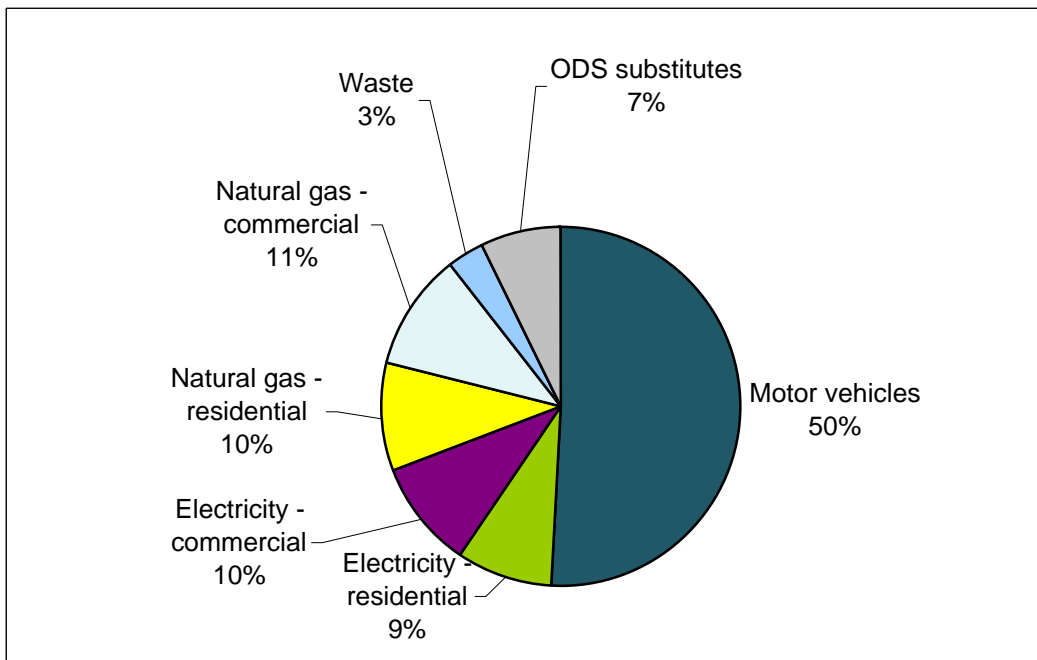
-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050.
Produced under contract by: The Planning Center|DC&E. March 2012.

- U.S. Census Bureau. 2011. 2009-2001 American Community Survey 3-Year Estimates

Website:

http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_1YR_DP03&prodType=table; this number was backcast against the population growth rate of 2.239%

Sources	MTCO ₂ e
Motor vehicles	1,899,799
Electricity - residential	327,813
Electricity - commercial	361,836
Natural gas - residential	362,832
Natural gas - commercial	394,417
Waste	123,945
Offroad equipment	1,051
ODS substitutes	273,422
<u>Total</u>	<u>3,745,116</u>



Community Greenhouse Gas Inventory

Waste

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Generated

Tons / year (instate)	333,099
-----------------------	---------

Percent Waste

Mixed MSW	48.2
Newspaper	1.3
Office paper	10.1
Corrugated cardboard	4.8
Magazines/third class mail	1.2
Food scraps	15.5
Grass	1.9
Leaves	1.9
Branches	0.6
Dimensional lumber	14.5

Waste Emissions

Emissions (MTCO ₂ e)	123,945	SEEC 2013
Emissions (MTCO ₂ e/person)	0.2274	Divide emissions by population

Sources:

Waste Generated: California Department of Resources Recycling and Recovery (CalRecycle). 2013. Jurisdiction Disposal By Facility: With Reported Alternative Daily Cover (ADC) and Alternative Intermediate Cover (AIC) Website: <http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=OriginJurisdictionIDs%3d168%26ReportYear%3d2010%26ReportName%3dReportEDRSJurisDisposalByFacility>, Accessed July 31, 2013.

Percent waste: California Integrated Waste Management Board (CIWMB), California 2008 Statewide Waste Characterization Study. Produced under contract by: Cascadia Consulting Group. August 2009. www.calrecycle.ca.gov/wastechar/WasteStudies.htm. Notes on waste percentages: office paper includes white ledger paper, other office paper, other miscellaneous paper, remainder/composite paper. Magazines includes magazines and catalogs, phone books and directories, and paper bags. Leaves and grass was one category in the publication; therefore, it was split into two categories by half. MSW (municipal solid waste) includes all other categories of waste to equal 100%.

Waste Emissions: Statewide Energy Efficiency Collaborative (SEEC). July 2013. Climate and Energy Management Suite. Version 2. Website: cems.californiaseec.org. Model run by Michael Brandman Associates/FirstCarbon Solutions, output contained in Appendix. Note: it was assumed that the landfills have methane capture. According to the County of Fresno Agenda Item 21, March 11, 2008 regarding the Feasibility Study on Gas to Energy Conversion at Southeast Regional Disposal Site and Amercian Avenue Disposal Site, Amercian Avenue Disposal site had methane capture at that time; that site collects 83 percent of the waste for the City (http://www2.co.fresno.ca.us/0110a/Questys_Agenda/MG151925/AS151956/AS151970/AI151985/DO152036/DO_152036.PDF).

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day	9,162,734	Source: Fehr and Peers. 2013
Vehicle miles traveled / year	3,344,397,910	Source: VMT per day * 365 days/year
Annual VMT Growth Rate	2.48%	

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	638	0	638	5
5 - 10 MPH	530	620	0	1,150	5
10 - 15 MPH	103,322	133,374	283,652	520,348	10
15 - 20 MPH	3,491	5,166	5,457	14,114	15
20 - 25 MPH	15,277	25,536	43,535	84,349	20
25 - 30 MPH	62,398	82,625	179,532	324,556	25
30 - 35 MPH	69,155	109,440	136,708	315,303	30
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801	35
40 - 45 MPH	182,177	222,301	488,347	892,825	40
45 - 50 MPH	154,975	204,211	601,450	960,636	45
50 - 55 MPH	83,818	118,402	285,006	487,226	50
55 - 60 MPH	372,022	442,335	1,046,233	1,860,591	55
60 - 65 MPH	356,646	443,044	902,392	1,702,082	60
65 - 70 MPH	20	26	71	117	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	1,811,202	2,315,549	5,035,983	9,162,734	

Source:
Fehr and Peers. 2013. 2010 VMT was found by using 2011 Existing Daily VMT provided by Fehr and Peers and back cast those numbers by the annual VMT growth rate).

Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $(((2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years}) * 0.248)$.

2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	654	0	654
5 - 10 MPH	543	636	0	1,179
10 - 15 MPH	105,950	136,766	290,867	533,583
15 - 20 MPH	3,580	5,297	5,596	14,473
20 - 25 MPH	15,666	26,186	44,642	86,494
25 - 30 MPH	63,985	84,727	184,099	332,811
30 - 35 MPH	70,914	112,224	140,185	323,323
35 - 40 MPH	417,733	541,256	1,090,653	2,049,642
40 - 45 MPH	186,811	227,955	500,768	915,534
45 - 50 MPH	158,917	209,405	616,748	985,070
50 - 55 MPH	85,950	121,414	292,255	499,619
55 - 60 MPH	381,485	453,586	1,072,845	1,907,916
60 - 65 MPH	365,717	454,313	925,345	1,745,375
65 - 70 MPH	20	27	73	120
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,857,271	2,374,446	5,164,076	9,395,793

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	1788	520348	14114	84349	324556	315303	1998801	892825	960636	487226	1860591	1702082	117	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	40.99%	0.11%	0.5% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	5.72%	0.01%	44.8% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.28%	0.01%	41.5% LDA, MCY
LHD1	2.71%	1.95%	10.6% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.30%	0.46%	2.4% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.56%	0.00%	0.1% LDA, MCY
MDV	19.74%	0.01%	
MH	0.15%	0.03%	
OBUS	0.10%	0.14%	
SBUS	0.02%	0.09%	
T6	0.18%	1.83%	
T7	0.03%	8.38%	
UBUS	0.06%	0.13%	
Total			100.0%

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1118	835	645	511	424	365	326	302	291	290	301	324	362	388	0
LDT1		1277	953	736	584	484	417	372	345	332	332	344	370	413	443	0
LDT2		1541	1151	889	704	584	503	450	416	401	400	415	446	498	534	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		222	204	176	154	137	124	114	107	101	98	97	97	99	104	0
MDV		1916	1431	1105	875	726	625	559	517	498	497	516	555	620	664	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		363	363	363	363	363	363	363	363	363	363	363	363	363	363	0
LDT1		373	373	373	373	373	373	373	373	373	373	373	373	373	373	0
LDT2		371	371	371	371	371	371	371	371	371	371	371	371	371	371	0
LHD1		533	533	533	533	533	533	533	533	533	533	533	0	0	0	0
LHD2		535	535	535	535	535	535	535	535	535	535	535	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		369	369	369	369	369	369	369	369	369	369	369	369	369	369	0
MH		2381	2162	1775	1457	1307	1226	1160	1107	1068	1042	1030	1032	1047	0	0
OBUS		3085	2487	2025	1711	1595	1551	1530	1421	1443	1399	1360	1188	1365	0	0
SBUS		2650	2189	1798	1418	1323	1242	1175	1121	1081	1055	1043	1045	0	0	0
T6		2621	2165	1778	1403	1309	1228	1162	1109	1070	1044	1032	1034	1049	0	0
T7		4026	3326	2731	2156	2010	1887	1784	1703	1643	1603	1585	1587	1611	0	0
UBUS		2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	0	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		733	213297	5785	34575	133039	129247	819333	365979	393776	199720	762678	697704	48	0	0
LDT1		102	29789	808	4829	18580	18051	114428	51113	54995	27893	106516	97442	7	0	0
LDT2		291	84691	2297	13728	52824	51318	325321	145315	156351	79300	302827	277028	19	0	0
LHD1		49	14123	383	2289	8809	8558	54252	24233	26074	13224	50501	46198	3	0	0
LHD2		5	1566	42	254	977	949	6014	2686	2890	1466	5598	5121	0	0	0
MCY		10	2891	78	469	1803	1752	11105	4960	5337	2707	10337	9456	1	0	0
MDV		353	102724	2786	16652	64072	62245	394592	176256	189643	96185	367307	336015	23	0	0
MH		3	804	22	130	502	487	3090	1380	1485	753	2877	2632	0	0	0
OBUS		2	537	15	87	335	325	2063	921	991	503	1920	1756	0	0	0
SBUS		0	114	3	19	71	69	439	196	211	107	409	374	0	0	0
T6		3	939	25	152	586	569	3608	1611	1734	879	3358	3072	0	0	0
T7		0	133	4	22	83	81	512	229	246	125	477	436	0	0	0
UBUS		1	293	8	48	183	178	1127	503	542	275	1049	959	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		2	578	16	94	360	350	2220	992	1067	541	2067	1891	0	0	0
LDT1		0	45	1	7	28	27	174	78	84	42	162	148	0	0	0
LDT2		0	40	1	6	25	24	153	68	73	37	142	130	0	0	0
LHD1		35	10132	275	1642	6320	6140	38921	17385	18705	9487	36229	33143	2	0	0
LHD2		8	2418	66	392	1508	1465	9289	4149	4464	2264	8646	7910	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	47	1	8	29	28	179	80	86	44	167	152	0	0	0
MH		0	144	4	23	90	87	553	247	266	135	515	471	0	0	0
OBUS		3	739	20	120	461	448	2837	1267	1363	692	2641	2416	0	0	0
SBUS		2	466	13	75	290	282	1789	799	860	436	1665	1523	0	0	0
T6		33	9535	259	1546	5947	5778	36627	16360	17603	8928	34094	31190	2	0	0
T7		150	43624	1183	7072	27210	26434	167573	74851	80536	40847	155986	142697	10	0	0
UBUS		2	678	18	110	423	411	2605	1163	1252	635	2424	2218	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		329	71,500	1,498	7,091	22,639	18,929	107,280	44,364	45,944	23,278	92,165	90,658	7	0	0	525,353
LDT1		52	11,398	239	1,131	3,612	3,020	17,113	7,078	7,330	3,714	14,704	14,466	1	0	0	83,806
LDT2		180	39,128	820	3,881	12,391	10,361	58,717	24,283	25,148	12,741	50,447	49,623	4	0	0	287,545
LHD1		49	11,546	214	925	2,716	2,128	11,498	4,624	4,732	2,412	9,781	0	0	0	0	50,577

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	5	1,280	24	103	301	236	1,275	513	525	267	1,084	0	0	0	0	5,607
MCY	1	237	6	29	99	87	508	212	217	107	401	368	0	0	0	2,271
MDV	271	59,008	1,236	5,852	18,683	15,622	88,533	36,611	37,915	19,210	76,059	74,815	6	0	0	433,550
MH	3	658	12	53	155	121	655	263	270	137	557	572	0	0	0	3,453
OBUS	2	439	8	35	103	81	437	176	180	92	372	382	0	0	0	2,305
SBUS	0	93	2	7	22	17	93	37	38	20	79	81	0	0	0	490
T6	3	768	14	61	181	142	765	307	315	160	650	668	0	0	0	4,031
T7	0	109	2	9	26	20	109	44	45	23	92	95	0	0	0	572
UBUS	1	240	4	19	56	44	239	96	98	50	203	208	0	0	0	1,259
Total	898	196,404	4,079	19,197	60,983	50,809	287,220	118,609	122,757	62,212	246,596	231,935	18	0	0	1,401,716
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	0	84	2	14	53	51	323	144	155	79	301	275	0	0	0	1,483
LDT1	0	7	0	1	4	4	26	12	13	6	24	22	0	0	0	120
LDT2	0	6	0	1	4	4	23	10	11	6	21	19	0	0	0	104
LHD1	7	2,167	59	351	1,351	1,313	8,322	3,717	4,000	2,029	7,747	0	0	0	0	31,056
LHD2	2	519	14	84	324	315	1,995	891	959	486	1,857	0	0	0	0	7,443
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	7	0	1	4	4	27	12	13	6	25	23	0	0	0	122
MH	0	125	3	14	47	43	258	110	114	56	213	195	0	0	0	1,177
OBUS	3	737	16	82	295	279	1,743	723	790	389	1,442	1,152	0	0	0	7,648
SBUS	2	409	9	43	154	141	844	360	373	185	697	639	0	0	0	3,854
T6	34	8,290	185	870	3,125	2,850	17,086	7,284	7,559	3,742	14,126	12,943	1	0	0	78,060
T7	242	58,248	1,297	6,121	21,957	20,023	120,045	51,177	53,112	26,292	99,248	90,939	6	0	0	548,464
UBUS	2	715	19	116	446	433	2,748	1,227	1,321	670	2,558	2,340	0	0	0	12,593
Total	294	71,315	1,605	7,699	27,765	25,459	153,438	65,667	68,419	33,945	128,258	108,548	7	0	0	692,418

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	2,094,134	1,899,799	1,899,799

EMFAC 2011
 2005 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter: region - County: Fresno, year - 2005, season - annual average, vehicle category - EMFAC2007, model year - aggregated, speed - all speeds, fuel - all) Website: <http://www.arb.ca.gov/emfac/>
 2005 Emission Rates will be used for BAU calculations.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa) (gms/mile)	Percent of Total VMT
Fresno	2005	LDA	GAS	5	574.3459975	1117.902588	1117.90259	0.003%
Fresno	2005	LDA	DSL	5	1.55629378	362.9037298	362.90373	0.000%
Fresno	2005	LDA	GAS	10	1560.70567	834.9088117	834.908812	0.008%
Fresno	2005	LDA	DSL	10	4.229012934	362.9037176	362.903718	0.000%
Fresno	2005	LDA	GAS	15	1481.313242	644.9016731	644.901673	0.007%
Fresno	2005	LDA	DSL	15	4.013884191	362.9037424	362.903742	0.000%
Fresno	2005	LDA	GAS	20	384673.2535	510.8041631	510.804163	1.912%
Fresno	2005	LDA	DSL	20	1042.341227	362.903737	362.903737	0.005%
Fresno	2005	LDA	GAS	25	46631.55871	423.823398	423.823398	0.232%
Fresno	2005	LDA	DSL	25	126.3565868	362.903733	362.903733	0.001%
Fresno	2005	LDA	GAS	30	142960.6643	364.7820036	364.782004	0.711%
Fresno	2005	LDA	DSL	30	387.3776096	362.9037333	362.903733	0.002%
Fresno	2005	LDA	GAS	35	556848.446	326.1153018	326.115302	2.768%
Fresno	2005	LDA	DSL	35	1508.880862	362.9037744	362.903774	0.008%
Fresno	2005	LDA	GAS	40	1045053.417	301.9173486	301.917349	5.196%
Fresno	2005	LDA	DSL	40	2831.760101	362.9037532	362.903753	0.014%
Fresno	2005	LDA	GAS	45	898804.646	290.6000061	290.600006	4.469%
Fresno	2005	LDA	DSL	45	2435.472726	362.9037268	362.903727	0.012%
Fresno	2005	LDA	GAS	50	1236247.625	290.295843	290.295843	6.146%
Fresno	2005	LDA	DSL	50	3349.835262	362.9037543	362.903754	0.017%
Fresno	2005	LDA	GAS	55	881689.2606	300.9810314	300.981031	4.383%
Fresno	2005	LDA	DSL	55	2389.095509	362.90373	362.90373	0.012%
Fresno	2005	LDA	GAS	60	1065707.872	323.6299465	323.629947	5.298%
Fresno	2005	LDA	DSL	60	2887.727003	362.9037118	362.903712	0.014%
Fresno	2005	LDA	GAS	65	1052205.277	361.6105735	361.610573	5.231%
Fresno	2005	LDA	DSL	65	2851.139136	362.903729	362.903729	0.014%
Fresno	2005	LDA	GAS	70	930481.937	387.59416	387.59416	4.626%
Fresno	2005	LDA	DSL	70	2521.30786	362.9037511	362.903751	0.013%
Fresno	2005	LDT1	GAS	5	80.2134059	1277.383889	1277.38389	0.000%
Fresno	2005	LDT1	DSL	5	0.122139063	373.2062411	373.206241	0.000%
Fresno	2005	LDT1	GAS	10	217.9688072	952.9532874	952.953287	0.001%
Fresno	2005	LDT1	DSL	10	0.331895978	373.2062264	373.206226	0.000%
Fresno	2005	LDT1	GAS	15	206.8808052	735.6841431	735.684143	0.001%
Fresno	2005	LDT1	DSL	15	0.315012523	373.2062425	373.206242	0.000%
Fresno	2005	LDT1	GAS	20	53723.62363	583.5347772	583.534777	0.267%
Fresno	2005	LDT1	DSL	20	81.803698	373.206226	373.206226	0.000%
Fresno	2005	LDT1	GAS	25	6512.582938	484.1298404	484.12984	0.032%
Fresno	2005	LDT1	DSL	25	9.916557	373.2062055	373.206206	0.000%
Fresno	2005	LDT1	GAS	30	19965.94701	416.6904394	416.690439	0.099%
Fresno	2005	LDT1	DSL	30	30.4016764	373.2062064	373.206206	0.000%
Fresno	2005	LDT1	GAS	35	77769.69216	372.4778067	372.477807	0.387%
Fresno	2005	LDT1	DSL	35	118.418068	373.2062534	373.206253	0.001%
Fresno	2005	LDT1	GAS	40	145952.6125	344.9252398	344.92524	0.726%
Fresno	2005	LDT1	DSL	40	222.238591	373.2062401	373.20624	0.001%
Fresno	2005	LDT1	GAS	45	125527.4358	331.9868346	331.986835	0.624%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	LDT1	DSL	45	191.137656	373.2062577	373.206258	0.001%
Fresno	2005	LDT1	GAS	50	172654.8816	331.6326825	331.632682	0.858%
Fresno	2005	LDT1	DSL	50	262.897513	373.2062113	373.206211	0.001%
Fresno	2005	LDT1	GAS	55	123137.0906	343.8328444	343.832844	0.612%
Fresno	2005	LDT1	DSL	55	187.497965	373.2061963	373.206196	0.001%
Fresno	2005	LDT1	GAS	60	148837.2054	369.7469417	369.746942	0.740%
Fresno	2005	LDT1	DSL	60	226.630859	373.206311	373.206311	0.001%
Fresno	2005	LDT1	GAS	65	146951.4277	413.1036658	413.103666	0.731%
Fresno	2005	LDT1	DSL	65	223.759469	373.2062322	373.206232	0.001%
Fresno	2005	LDT1	GAS	70	129951.4999	442.7709544	442.770954	0.646%
Fresno	2005	LDT1	DSL	70	197.874089	373.2062236	373.206224	0.001%
Fresno	2005	LDT2	GAS	5	228.0478692	1541.14964	1541.14964	0.001%
Fresno	2005	LDT2	DSL	5	0.107040842	371.0954996	371.0955	0.000%
Fresno	2005	LDT2	GAS	10	619.688516	1150.709694	1150.70969	0.003%
Fresno	2005	LDT2	DSL	10	0.290868673	371.095504	371.095504	0.000%
Fresno	2005	LDT2	GAS	15	588.1651566	888.7202414	888.720241	0.003%
Fresno	2005	LDT2	DSL	15	0.276072268	371.0954901	371.09549	0.000%
Fresno	2005	LDT2	GAS	20	152737.0474	704.1586177	704.158618	0.759%
Fresno	2005	LDT2	DSL	20	71.691539	371.0954812	371.095481	0.000%
Fresno	2005	LDT2	GAS	25	18515.36584	584.2418904	584.24189	0.092%
Fresno	2005	LDT2	DSL	25	8.6907219	371.095481	371.095481	0.000%
Fresno	2005	LDT2	GAS	30	56763.47295	502.8540511	502.854051	0.282%
Fresno	2005	LDT2	DSL	30	26.6435743	371.0954791	371.095479	0.000%
Fresno	2005	LDT2	GAS	35	221100.3455	449.539312	449.539312	1.099%
Fresno	2005	LDT2	DSL	35	103.779821	371.0955143	371.095514	0.001%
Fresno	2005	LDT2	GAS	40	414945.4046	416.2074653	416.207465	2.063%
Fresno	2005	LDT2	DSL	40	194.766579	371.0954985	371.095498	0.001%
Fresno	2005	LDT2	GAS	45	356876.2901	400.603499	400.603499	1.774%
Fresno	2005	LDT2	DSL	45	167.510172	371.0955097	371.09551	0.001%
Fresno	2005	LDT2	GAS	50	490860.2714	400.1823445	400.182345	2.440%
Fresno	2005	LDT2	DSL	50	230.399436	371.09548	371.09548	0.001%
Fresno	2005	LDT2	GAS	55	350080.5216	414.9103501	414.91035	1.740%
Fresno	2005	LDT2	DSL	55	164.320381	371.0955152	371.095515	0.001%
Fresno	2005	LDT2	GAS	60	423146.3014	446.1440566	446.144057	2.104%
Fresno	2005	LDT2	DSL	60	198.615926	371.0954932	371.095493	0.001%
Fresno	2005	LDT2	GAS	65	417785.0125	498.4924137	498.492414	2.077%
Fresno	2005	LDT2	DSL	65	196.099447	371.0954901	371.09549	0.001%
Fresno	2005	LDT2	GAS	70	369453.9847	534.3069769	534.306977	1.837%
Fresno	2005	LDT2	DSL	70	173.41387	371.0955028	371.095503	0.001%
Fresno	2005	LHD1	GAS	5	15493.27829	2513.497349	2513.49735	0.077%
Fresno	2005	LHD1	DSL	5	6887.103617	532.5794	532.5794	0.034%
Fresno	2005	LHD1	GAS	10	40399.97733	2036.128182	2036.12818	0.201%
Fresno	2005	LHD1	DSL	10	22902.76288	532.5792393	532.579239	0.114%
Fresno	2005	LHD1	GAS	15	91996.19282	1392.429536	1392.42954	0.457%
Fresno	2005	LHD1	DSL	15	49600.82188	532.5792921	532.579292	0.247%
Fresno	2005	LHD1	GAS	20	106300.888	1006.068544	1006.06854	0.528%
Fresno	2005	LHD1	DSL	20	54378.52199	532.5792617	532.579262	0.270%
Fresno	2005	LHD1	GAS	25	81884.45437	768.0121288	768.012129	0.407%
Fresno	2005	LHD1	DSL	25	58199.51987	532.5793513	532.579351	0.289%
Fresno	2005	LHD1	GAS	30	72412.73099	619.4335923	619.433592	0.360%
Fresno	2005	LHD1	DSL	30	49127.77262	532.5792941	532.579294	0.244%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	LHD1	GAS	35	27058.00658	527.8465902	527.84659	0.135%
Fresno	2005	LHD1	DSL	35	25926.63204	532.579317	532.579317	0.129%
Fresno	2005	LHD1	GAS	40	7986.90704	475.2331456	475.233146	0.040%
Fresno	2005	LHD1	DSL	40	14232.8744	532.5792642	532.579264	0.071%
Fresno	2005	LHD1	GAS	45	9832.585266	452.0558438	452.055844	0.049%
Fresno	2005	LHD1	DSL	45	15361.95268	532.5792928	532.579293	0.076%
Fresno	2005	LHD1	GAS	50	72602.43931	454.3217938	454.321794	0.361%
Fresno	2005	LHD1	DSL	50	59317.36357	532.5793236	532.579324	0.295%
Fresno	2005	LHD1	GAS	55	19969.09783	482.4155587	482.415559	0.099%
Fresno	2005	LHD1	DSL	55	35721.45554	532.5792563	532.579256	0.178%
Fresno	2005	LHD2	GAS	5	1717.546588	2513.497194	2513.49719	0.009%
Fresno	2005	LHD2	DSL	5	1643.654028	534.8240705	534.824071	0.008%
Fresno	2005	LHD2	GAS	10	4478.641561	2036.128258	2036.12826	0.022%
Fresno	2005	LHD2	DSL	10	5465.899708	534.8239928	534.823993	0.027%
Fresno	2005	LHD2	GAS	15	10198.47067	1392.429599	1392.4296	0.051%
Fresno	2005	LHD2	DSL	15	11837.57275	534.8239985	534.823999	0.059%
Fresno	2005	LHD2	GAS	20	11784.25424	1006.068517	1006.06852	0.059%
Fresno	2005	LHD2	DSL	20	12977.80233	534.8240078	534.824008	0.065%
Fresno	2005	LHD2	GAS	25	9077.508294	768.0121044	768.012104	0.045%
Fresno	2005	LHD2	DSL	25	13889.71073	534.8240484	534.824048	0.069%
Fresno	2005	LHD2	GAS	30	8027.49616	619.4336218	619.433622	0.040%
Fresno	2005	LHD2	DSL	30	11724.67582	534.824037	534.824037	0.058%
Fresno	2005	LHD2	GAS	35	2999.584099	527.846466	527.846466	0.015%
Fresno	2005	LHD2	DSL	35	6187.566882	534.8240546	534.824055	0.031%
Fresno	2005	LHD2	GAS	40	885.4087913	475.2331522	475.233152	0.004%
Fresno	2005	LHD2	DSL	40	3396.771437	534.8241463	534.824146	0.017%
Fresno	2005	LHD2	GAS	45	1090.016138	452.0558109	452.055811	0.005%
Fresno	2005	LHD2	DSL	45	3666.233792	534.824068	534.824068	0.018%
Fresno	2005	LHD2	GAS	50	8048.527309	454.3218106	454.321811	0.040%
Fresno	2005	LHD2	DSL	50	14156.48996	534.8240631	534.824063	0.070%
Fresno	2005	LHD2	GAS	55	2213.724954	482.415483	482.415483	0.011%
Fresno	2005	LHD2	DSL	55	8525.166441	534.8240334	534.824033	0.042%
Fresno	2005	MCY	GAS	5	7.7843384	221.6010944	221.601094	0.000%
Fresno	2005	MCY	GAS	10	21.1528613	204.3809145	204.380914	0.000%
Fresno	2005	MCY	GAS	15	20.07682252	176.0040917	176.004092	0.000%
Fresno	2005	MCY	GAS	20	5213.628487	154.0664735	154.066474	0.026%
Fresno	2005	MCY	GAS	25	632.0158685	137.0847399	137.08474	0.003%
Fresno	2005	MCY	GAS	30	1937.602297	123.9888015	123.988801	0.010%
Fresno	2005	MCY	GAS	35	7547.186875	114.0069527	114.006953	0.038%
Fresno	2005	MCY	GAS	40	14164.02356	106.5882594	106.588259	0.070%
Fresno	2005	MCY	GAS	45	12181.85384	101.351138	101.351138	0.061%
Fresno	2005	MCY	GAS	50	16755.35397	98.0507808	98.0507808	0.083%
Fresno	2005	MCY	GAS	55	11949.88349	96.5621063	96.5621063	0.059%
Fresno	2005	MCY	GAS	60	14443.95889	96.87654461	96.8765446	0.072%
Fresno	2005	MCY	GAS	65	14260.95394	99.1149102	99.1149102	0.071%
Fresno	2005	MCY	GAS	70	12611.18911	103.5614952	103.561495	0.063%
Fresno	2005	MDV	GAS	5	276.6057878	1915.561564	1915.56156	0.001%
Fresno	2005	MDV	DSL	5	0.125445122	369.0636663	369.063666	0.000%
Fresno	2005	MDV	GAS	10	751.6379153	1430.71487	1430.71487	0.004%
Fresno	2005	MDV	DSL	10	0.34087976	369.0636324	369.063632	0.000%
Fresno	2005	MDV	GAS	15	713.402331	1105.142376	1105.14238	0.004%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	MDV	DSL	15	0.323539357	369.0636164	369.063616	0.000%
Fresno	2005	MDV	GAS	20	185259.1327	875.2888262	875.288826	0.921%
Fresno	2005	MDV	DSL	20	84.01796496	369.0636582	369.063658	0.000%
Fresno	2005	MDV	GAS	25	22457.81699	726.2455563	726.245556	0.112%
Fresno	2005	MDV	DSL	25	10.18497853	369.0636516	369.063652	0.000%
Fresno	2005	MDV	GAS	30	68850.04116	625.0744431	625.074443	0.342%
Fresno	2005	MDV	DSL	30	31.22459012	369.0636522	369.063652	0.000%
Fresno	2005	MDV	GAS	35	268178.9233	558.8198391	558.819839	1.333%
Fresno	2005	MDV	DSL	35	121.6234022	369.0637076	369.063708	0.001%
Fresno	2005	MDV	GAS	40	503299.0839	517.3492783	517.349278	2.502%
Fresno	2005	MDV	DSL	40	228.2541587	369.0636653	369.063665	0.001%
Fresno	2005	MDV	GAS	45	432865.4758	497.9571493	497.957149	2.152%
Fresno	2005	MDV	DSL	45	196.3113735	369.0636861	369.063686	0.001%
Fresno	2005	MDV	GAS	50	595378.4851	497.4363565	497.436356	2.960%
Fresno	2005	MDV	DSL	50	270.0136082	369.0636733	369.063673	0.001%
Fresno	2005	MDV	GAS	55	424622.6866	515.7464096	515.74641	2.111%
Fresno	2005	MDV	DSL	55	192.5731227	369.0637145	369.063714	0.001%
Fresno	2005	MDV	GAS	60	513246.2809	554.5537379	554.553738	2.552%
Fresno	2005	MDV	DSL	60	232.7653436	369.0636774	369.063677	0.001%
Fresno	2005	MDV	GAS	65	506743.4137	619.6376375	619.637637	2.519%
Fresno	2005	MDV	DSL	65	229.8161802	369.0636924	369.063692	0.001%
Fresno	2005	MDV	GAS	70	448121.3124	664.1628397	664.16284	2.228%
Fresno	2005	MDV	DSL	70	203.2301423	369.0636551	369.063655	0.001%
Fresno	2005	MH	GAS	5	268.9167968	2513.497406	2513.49741	0.001%
Fresno	2005	MH	DSL	5	44.76225056	2381.129731	2381.12973	0.000%
Fresno	2005	MH	GAS	10	1351.847182	2036.128315	2036.12831	0.007%
Fresno	2005	MH	DSL	10	222.8096365	2162.072949	2162.07295	0.001%
Fresno	2005	MH	GAS	15	1707.614697	1392.429658	1392.42966	0.008%
Fresno	2005	MH	DSL	15	300.715632	1775.243505	1775.24351	0.001%
Fresno	2005	MH	GAS	20	1771.215993	1006.068537	1006.06854	0.009%
Fresno	2005	MH	DSL	20	318.91989	1456.791888	1456.79189	0.002%
Fresno	2005	MH	GAS	25	1973.543913	768.012138	768.012138	0.010%
Fresno	2005	MH	DSL	25	332.1424004	1306.661906	1306.66191	0.002%
Fresno	2005	MH	GAS	30	2231.372516	619.4336513	619.433651	0.011%
Fresno	2005	MH	DSL	30	399.3743491	1226.495736	1226.49574	0.002%
Fresno	2005	MH	GAS	35	2773.257546	527.8465727	527.846573	0.014%
Fresno	2005	MH	DSL	35	470.9149121	1159.967885	1159.96789	0.002%
Fresno	2005	MH	GAS	40	3452.419773	475.233224	475.233224	0.017%
Fresno	2005	MH	DSL	40	584.5676013	1107.078048	1107.07805	0.003%
Fresno	2005	MH	GAS	45	3148.370866	452.0558634	452.055863	0.016%
Fresno	2005	MH	DSL	45	478.6833316	1067.826603	1067.8266	0.002%
Fresno	2005	MH	GAS	50	3064.012004	454.3218205	454.321821	0.015%
Fresno	2005	MH	DSL	50	535.7245191	1042.213217	1042.21322	0.003%
Fresno	2005	MH	GAS	55	4007.448442	482.4155989	482.415599	0.020%
Fresno	2005	MH	DSL	55	785.0557197	1030.238195	1030.2382	0.004%
Fresno	2005	MH	GAS	60	4624.41305	541.2091675	541.209168	0.023%
Fresno	2005	MH	DSL	60	943.3760148	1031.901337	1031.90134	0.005%
Fresno	2005	MH	GAS	65	722.62303	641.4979244	641.497924	0.004%
Fresno	2005	MH	DSL	65	148.4605629	1047.202697	1047.2027	0.001%
Fresno	2005	OBUS	GAS	5	179.4898447	2513.497341	2513.49734	0.001%
Fresno	2005	OBUS	DSL	5	165.7644542	3084.635701	3084.6357	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	OBUS	GAS	10	902.2969282	2036.128585	2036.12858	0.004%
Fresno	2005	OBUS	DSL	10	764.4488042	2486.733654	2486.73365	0.004%
Fresno	2005	OBUS	GAS	15	1139.755796	1392.429568	1392.42957	0.006%
Fresno	2005	OBUS	DSL	15	1006.387031	2024.544507	2024.54451	0.005%
Fresno	2005	OBUS	GAS	20	1182.206665	1006.068712	1006.06871	0.006%
Fresno	2005	OBUS	DSL	20	1343.731614	1711.279078	1711.27908	0.007%
Fresno	2005	OBUS	GAS	25	1317.251509	768.0121314	768.012131	0.007%
Fresno	2005	OBUS	DSL	25	1394.142051	1595.098427	1595.09843	0.007%
Fresno	2005	OBUS	GAS	30	1489.340651	619.4336132	619.433613	0.007%
Fresno	2005	OBUS	DSL	30	1945.026661	1550.74938	1550.74938	0.010%
Fresno	2005	OBUS	GAS	35	1851.024293	527.8466067	527.846607	0.009%
Fresno	2005	OBUS	DSL	35	2872.193717	1530.258857	1530.25886	0.014%
Fresno	2005	OBUS	GAS	40	2304.334444	475.2331835	475.233184	0.011%
Fresno	2005	OBUS	DSL	40	3065.466762	1421.24912	1421.24912	0.015%
Fresno	2005	OBUS	GAS	45	2101.3955	452.0558515	452.055852	0.010%
Fresno	2005	OBUS	DSL	45	3431.453572	1443.331847	1443.33185	0.017%
Fresno	2005	OBUS	GAS	50	2045.089835	454.321748	454.321748	0.010%
Fresno	2005	OBUS	DSL	50	3664.621488	1399.471266	1399.47127	0.018%
Fresno	2005	OBUS	GAS	55	2674.791345	482.4155895	482.415589	0.013%
Fresno	2005	OBUS	DSL	55	4802.489099	1359.79194	1359.79194	0.024%
Fresno	2005	OBUS	GAS	60	3086.587339	541.2091188	541.209119	0.015%
Fresno	2005	OBUS	DSL	60	3246.411046	1188.092655	1188.09266	0.016%
Fresno	2005	OBUS	GAS	65	482.3182765	641.497927	641.497927	0.002%
Fresno	2005	OBUS	DSL	65	845.5605614	1365.372637	1365.37264	0.004%
Fresno	2005	SBUS	GAS	5	43.72972372	2513.49706	2513.49706	0.000%
Fresno	2005	SBUS	DSL	5	178.2500641	2650.118082	2650.11808	0.001%
Fresno	2005	SBUS	GAS	10	153.2704446	2036.128028	2036.12803	0.001%
Fresno	2005	SBUS	DSL	10	624.7573386	2189.204641	2189.20464	0.003%
Fresno	2005	SBUS	GAS	15	306.5408773	1392.429627	1392.42963	0.002%
Fresno	2005	SBUS	DSL	15	1249.514677	1797.52678	1797.52678	0.006%
Fresno	2005	SBUS	GAS	20	416.0794089	1006.068501	1006.0685	0.002%
Fresno	2005	SBUS	DSL	20	1696.012951	1418.069831	1418.06983	0.008%
Fresno	2005	SBUS	GAS	25	656.8093052	768.0121132	768.012113	0.003%
Fresno	2005	SBUS	DSL	25	2677.270418	1323.090846	1323.09085	0.013%
Fresno	2005	SBUS	GAS	30	787.9984747	619.4336026	619.433603	0.004%
Fresno	2005	SBUS	DSL	30	3212.02061	1241.920828	1241.92083	0.016%
Fresno	2005	SBUS	GAS	35	808.7813293	527.8465156	527.846516	0.004%
Fresno	2005	SBUS	DSL	35	3296.735071	1174.559776	1174.55978	0.016%
Fresno	2005	SBUS	GAS	40	545.9701739	475.2331343	475.233134	0.003%
Fresno	2005	SBUS	DSL	40	2225.470458	1121.007691	1121.00769	0.011%
Fresno	2005	SBUS	GAS	45	261.9433353	452.0558193	452.055819	0.001%
Fresno	2005	SBUS	DSL	45	1067.727156	1081.264572	1081.26457	0.005%
Fresno	2005	SBUS	GAS	50	131.1891745	454.3217491	454.321749	0.001%
Fresno	2005	SBUS	DSL	50	534.7501924	1055.33042	1055.33042	0.003%
Fresno	2005	SBUS	GAS	55	195.2667083	482.415443	482.415443	0.001%
Fresno	2005	SBUS	DSL	55	795.9414888	1043.205234	1043.20523	0.004%
Fresno	2005	SBUS	GAS	60	108.6750878	541.2091468	541.209147	0.001%
Fresno	2005	SBUS	DSL	60	442.9788178	1044.889015	1044.88902	0.002%
Fresno	2005	T6	GAS	5	313.9394	2513.49736	2513.49736	0.002%
Fresno	2005	T6	DSL	5	2964.362997	2621.415259	2621.41526	0.015%
Fresno	2005	T6	GAS	10	1578.176144	2036.128442	2036.12844	0.008%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	T6	DSL	10	14755.48228	2165.493866	2165.49387	0.073%
Fresno	2005	T6	GAS	15	1993.506875	1392.42983	1392.42983	0.010%
Fresno	2005	T6	DSL	15	19914.77964	1778.058179	1778.05818	0.099%
Fresno	2005	T6	GAS	20	2067.756551	1006.068559	1006.06856	0.010%
Fresno	2005	T6	DSL	20	21120.34755	1402.711041	1402.71104	0.105%
Fresno	2005	T6	GAS	25	2303.958615	768.012209	768.012209	0.011%
Fresno	2005	T6	DSL	25	21996.00436	1308.760752	1308.76075	0.109%
Fresno	2005	T6	GAS	30	2604.953592	619.4336025	619.433602	0.013%
Fresno	2005	T6	DSL	30	26448.41322	1228.469867	1228.46987	0.131%
Fresno	2005	T6	GAS	35	3237.56208	527.8465737	527.846574	0.016%
Fresno	2005	T6	DSL	35	31186.16258	1161.838388	1161.83839	0.155%
Fresno	2005	T6	GAS	40	4030.43084	475.2332482	475.233248	0.020%
Fresno	2005	T6	DSL	40	38712.76602	1108.866313	1108.86631	0.192%
Fresno	2005	T6	GAS	45	3675.47757	452.0558736	452.055874	0.018%
Fresno	2005	T6	DSL	45	31700.62212	1069.553643	1069.55364	0.158%
Fresno	2005	T6	GAS	50	3576.99512	454.3217943	454.321794	0.018%
Fresno	2005	T6	DSL	50	35478.15139	1043.900377	1043.90038	0.176%
Fresno	2005	T6	GAS	55	4678.38379	482.4155587	482.415559	0.023%
Fresno	2005	T6	DSL	55	51990.01588	1031.906517	1031.90652	0.258%
Fresno	2005	T6	GAS	60	5398.64157	541.2092298	541.20923	0.027%
Fresno	2005	T6	DSL	60	62474.71663	1033.572061	1033.57206	0.311%
Fresno	2005	T6	GAS	65	843.606066	641.4979114	641.497911	0.004%
Fresno	2005	T6	DSL	65	9831.744097	1048.89701	1048.89701	0.049%
Fresno	2005	T7	GAS	5	18.76846249	2513.497347	2513.49735	0.000%
Fresno	2005	T7	DSL	5	6085.370392	4025.733112	4025.73311	0.030%
Fresno	2005	T7	GAS	10	91.73117308	2036.127866	2036.12787	0.000%
Fresno	2005	T7	DSL	10	23246.39627	3325.570158	3325.57016	0.116%
Fresno	2005	T7	GAS	15	100.034277	1392.429565	1392.42957	0.000%
Fresno	2005	T7	DSL	15	28430.53281	2730.581376	2730.58138	0.141%
Fresno	2005	T7	GAS	20	170.9568883	1006.068425	1006.06843	0.001%
Fresno	2005	T7	DSL	20	70220.90117	2156.026899	2156.0269	0.349%
Fresno	2005	T7	GAS	25	223.1096354	768.012027	768.012027	0.001%
Fresno	2005	T7	DSL	25	64214.81804	2009.876716	2009.87672	0.319%
Fresno	2005	T7	GAS	30	407.4400111	619.433607	619.433607	0.002%
Fresno	2005	T7	DSL	30	108412.4915	1886.573218	1886.57322	0.539%
Fresno	2005	T7	GAS	35	724.6866805	527.8465816	527.846582	0.004%
Fresno	2005	T7	DSL	35	195036.7831	1784.246602	1784.2466	0.970%
Fresno	2005	T7	GAS	40	631.7265342	475.2333056	475.233306	0.003%
Fresno	2005	T7	DSL	40	184058.0666	1702.896867	1702.89687	0.915%
Fresno	2005	T7	GAS	45	668.4343308	452.0557651	452.055765	0.003%
Fresno	2005	T7	DSL	45	257693.2211	1642.524014	1642.52401	1.281%
Fresno	2005	T7	GAS	50	699.3715848	454.3217173	454.321717	0.003%
Fresno	2005	T7	DSL	50	267994.6167	1603.128043	1603.12804	1.332%
Fresno	2005	T7	GAS	55	1026.625606	482.4155395	482.415539	0.005%
Fresno	2005	T7	DSL	55	326803.0314	1584.708954	1584.70895	1.625%
Fresno	2005	T7	GAS	60	253.3729539	541.2091887	541.209189	0.001%
Fresno	2005	T7	DSL	60	99555.62045	1587.266747	1587.26675	0.495%
Fresno	2005	T7	GAS	65	135.80266	641.4978614	641.497861	0.001%
Fresno	2005	T7	DSL	65	54528.61248	1610.801421	1610.80142	0.271%
Fresno	2005	UBUS	GAS	5	112.3655482	2513.497178	2513.49718	0.001%
Fresno	2005	UBUS	DSL	5	259.736822	2627.453122	2627.45312	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	UBUS	GAS	10	403.3140682	2036.128273	2036.12827	0.002%
Fresno	2005	UBUS	DSL	10	932.274273	2627.453223	2627.45322	0.005%
Fresno	2005	UBUS	GAS	15	806.6280844	1392.429514	1392.42951	0.004%
Fresno	2005	UBUS	DSL	15	1864.54857	2627.453199	2627.4532	0.009%
Fresno	2005	UBUS	GAS	20	1064.467933	1006.06853	1006.06853	0.005%
Fresno	2005	UBUS	DSL	20	2460.55387	2627.453313	2627.45331	0.012%
Fresno	2005	UBUS	GAS	25	1603.164937	768.0121541	768.012154	0.008%
Fresno	2005	UBUS	DSL	25	3705.77074	2627.453153	2627.45315	0.018%
Fresno	2005	UBUS	GAS	30	2006.478844	619.4336943	619.433694	0.010%
Fresno	2005	UBUS	DSL	30	4638.04437	2627.453188	2627.45319	0.023%
Fresno	2005	UBUS	GAS	35	1966.340307	527.8465849	527.846585	0.010%
Fresno	2005	UBUS	DSL	35	4545.26272	2627.453585	2627.45358	0.023%
Fresno	2005	UBUS	GAS	40	1417.551931	475.2332242	475.233224	0.007%
Fresno	2005	UBUS	DSL	40	3276.71961	2627.453246	2627.45325	0.016%
Fresno	2005	UBUS	GAS	45	617.9537663	452.0558589	452.055859	0.003%
Fresno	2005	UBUS	DSL	45	1428.421313	2627.453287	2627.45329	0.007%
Fresno	2005	UBUS	GAS	50	313.9658901	454.3218054	454.321805	0.002%
Fresno	2005	UBUS	DSL	50	725.74291	2627.453219	2627.45322	0.004%
Fresno	2005	UBUS	GAS	55	389.2542268	482.4155339	482.415534	0.002%
Fresno	2005	UBUS	DSL	55	899.774456	2627.453379	2627.45338	0.004%
Fresno	2005	UBUS	GAS	60	637.1160815	541.2091431	541.209143	0.003%
Fresno	2005	UBUS	DSL	60	1472.715687	2627.453055	2627.45305	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide	0.504	Used average of 2004-2006 historical emission factors.
Methane	0.000031	
Nitrous oxide	0.000011	

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions
			CO2	CH4	N2O	MTCO2e
Residential	1,422,450,000	2,610	358457	22.0	7.8	327,813
Commercial	1,570,085,283	7,503	395661	24.3	8.6	361,836
Industrial	*					0
Total	2,992,535,283		754,119	46.4	16.5	689,649

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions
			CO2	CH4	N2O	MTCO2e
Residential	68,192,726	125	398,927	37.5	0.8	362,832
Commercial	74,128,922	354	433,654	40.8	0.8	394,417
Industrial	*					0
Total	142,321,648		832,582	78.3	1.6	757,250

Notes and Sources:

*The Industrial kWh/year and therms/year is unavailable at this time.

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Usage: PG&E 2013. Pacific Gas and Electric Company. ; PG&E. 2013. Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

- Emission Factor: California Climate Action Registry (CCAR). Power/Utility Protocol (PUP). Years 2004-2006.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

Community Greenhouse Gas Inventory Offroad Equipment

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	930,000	1,019	0.1600	0.0100	930
Fresno	545,000	597	0	0	545
Percent Fresno/Fresno County	58.6%				

Other Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	930,000	920	0.360	0.08000	864
Fresno	545,000	539	0	0	506
Percent Fresno/Fresno County	58.6%				

Total Fresno 1,051

Notes:

Emissions for Fresno County are from OFFROAD2007 for the year assessed; emissions from Fresno are apportioned based on population.

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

Emissions (MMTCO ₂ e)	18.69
Population	37,253,956
Emissions (MTCO ₂ e per person)	0.50

Fresno

Population	545,000
Emissions (MTCO ₂ e per person)	273,422
(estimated by using California per person emissions)	

Sources/Notes:

California Emissions from: California Air Resources Board. 2010. California GHG Emissions - Forecast (2008-2020) Website:
http://www.arb.ca.gov/cc/inventory/data/tables/2020_ghg_emissions_forecast_2010-10-28.pdf
Accessed August 19, 2013.

California Population from: Census Bureau. 2010. Population Quick-Facts. Website:
<http://quickfacts.census.gov/qfd/states/06000.html>. Accessed August 19, 2013.

Community Greenhouse Gas Inventory

Summary

Year: 2020

Prepared by FirstCarbon Solutions

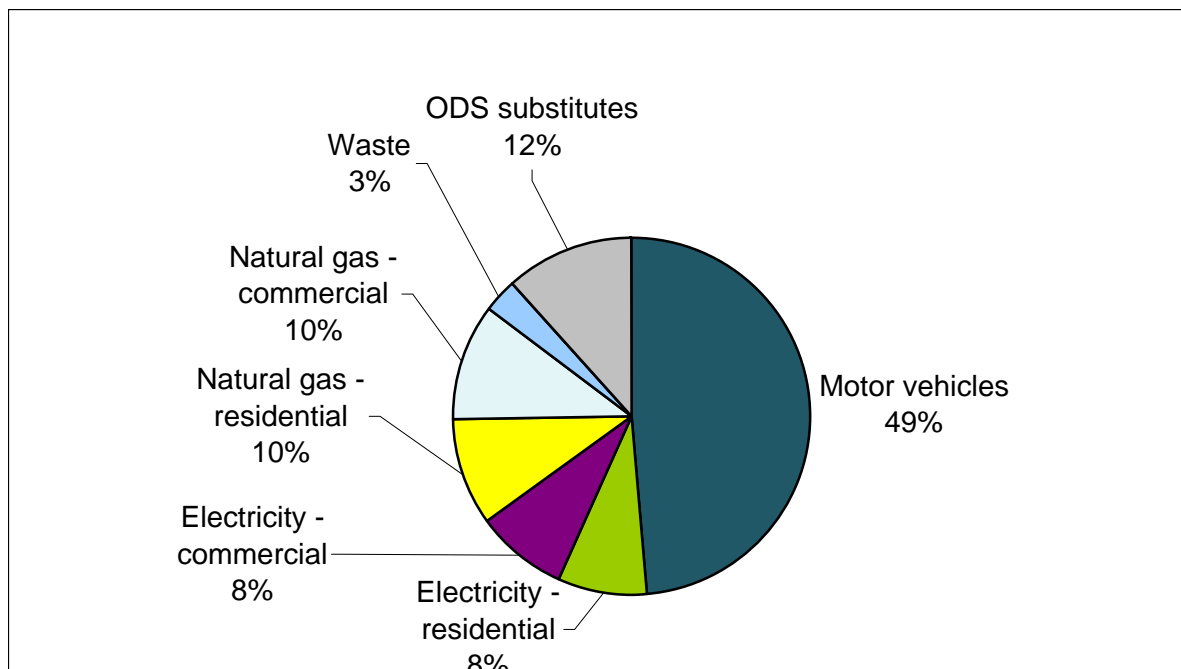
	Data	Source
City Information		
Population	649,200	Fresno COG
Employment	240,014	

County Information		
Population	1,082,000	Fresno COG

-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050. Produced under contract by: The Planning Center|DC&E. March 2012.

-Employment: Took the 2010 population (545,000) and 2010 employment (183,825) and cross multiplied with the 2020 population (649,200) and the 2020 employment number (X).

Emissions (MTCO₂e/year)	Without Regulation	With Pavley I and LCFS
Motor vehicles	2,383,023	2,383,023
Electricity - residential	390,488	
Electricity - commercial	415,012	
Natural gas - residential	476,679	
Natural gas - commercial	514,647	
Waste	147,628	
Offroad equipment	1,138	
ODS substitutes	576,784	
<u>Total</u>	<u>4,905,399</u>	



Community Greenhouse Gas Inventory

Waste

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Emissions

Emissions (MTCO ₂ e)*	147,628	
Emissions (MTCO ₂ e/person)	0.2274	2010 waste emissions per person

Notes:

*Emissions were calculated by multiplying the 2010 per capita rate by the population for this year.

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without regulation)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **11,493,323** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 4,195,062,895 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	800	0	800	5
5 - 10 MPH	665	778	0	1,443	5
10 - 15 MPH	129,603	167,298	355,800	652,701	10
15 - 20 MPH	4,379	6,480	6,845	17,704	15
20 - 25 MPH	19,163	32,031	54,608	105,802	20
25 - 30 MPH	78,269	103,641	225,197	407,107	25
30 - 35 MPH	86,745	137,277	171,480	395,502	30
35 - 40 MPH	510,988	662,086	1,334,132	2,507,207	35
40 - 45 MPH	228,515	278,844	612,561	1,119,920	40
45 - 50 MPH	194,394	256,153	754,432	1,204,979	45
50 - 55 MPH	105,138	148,518	357,499	611,155	50
55 - 60 MPH	466,648	554,845	1,312,348	2,333,841	55
60 - 65 MPH	447,361	555,735	1,131,920	2,135,016	60
65 - 70 MPH	25	33	89	147	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,271,891	2,904,520	6,316,912	11,493,323	

Source:
 Fehr and Peers. 2013. 2020 VMT was found by multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 10 years of VMT growth between 2010 and 2020 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2010 and 2056 VMT: $(((2056 \text{ VMT} - 2010 \text{ VMT}) / 2010 \text{ VMT}) / 46 \text{ years} = .0254)$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2243	652701	17704	105802	407107	395502	2507207	1119920	1204979	611155	2333841	2135016	147	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	40.99%	0.11%	GAS Heavy duty 0.5% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	5.72%	0.01%	Light trucks 44.8% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.28%	0.01%	Passenger 41.5% LDA, MCY
LHD1	2.71%	1.95%	DSL Heavy duty 10.6% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.30%	0.46%	Light trucks 2.4% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.56%	0.00%	Passenger 0.1% LDA, MCY
MDV	19.74%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.10%	0.14%	
SBUS	0.02%	0.09%	
T6	0.18%	1.83%	
T7	0.03%	8.38%	
UBUS	0.06%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1118	835	645	511	424	365	326	302	291	290	301	324	362	388	0
LDT1		1277	953	736	584	484	417	372	345	332	332	344	370	413	443	0
LDT2		1541	1151	889	704	584	503	450	416	401	400	415	446	498	534	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		222	204	176	154	137	124	114	107	101	98	97	97	99	104	0
MDV		1916	1431	1105	875	726	625	559	517	498	497	516	555	620	664	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions (without regulation)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		363	363	363	363	363	363	363	363	363	363	363	363	363	363	0
LDT1		373	373	373	373	373	373	373	373	373	373	373	373	373	373	0
LDT2		371	371	371	371	371	371	371	371	371	371	371	371	371	371	0
LHD1		533	533	533	533	533	533	533	533	533	533	533	0	0	0	0
LHD2		535	535	535	535	535	535	535	535	535	535	535	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		369	369	369	369	369	369	369	369	369	369	369	369	369	369	0
MH		2381	2162	1775	1457	1307	1226	1160	1107	1068	1042	1030	1032	1047	0	0
OBUS		3085	2487	2025	1711	1595	1551	1530	1421	1443	1399	1360	1188	1365	0	0
SBUS		2650	2189	1798	1418	1323	1242	1175	1121	1081	1055	1043	1045	0	0	0
T6		2621	2165	1778	1403	1309	1228	1162	1109	1070	1044	1032	1034	1049	0	0
T7		4026	3326	2731	2156	2010	1887	1784	1703	1643	1603	1585	1587	1611	0	0
UBUS		2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		919	267550	7257	43370	166878	162121	1027734	459069	493935	250520	956669	875168	60	0	0
LDT1		128	37366	1014	6057	23306	22642	143534	64114	68983	34988	133609	122226	8	0	0
LDT2		365	106233	2881	17220	66260	64371	408069	182276	196120	99470	379852	347491	24	0	0
LHD1		61	17716	481	2872	11050	10735	68051	30397	32706	16588	63346	57949	4	0	0
LHD2		7	1964	53	318	1225	1190	7544	3626	3178	1839	7022	6424	0	0	0
MCY		12	3626	98	588	2262	2197	13929	6222	6695	3395	12966	11862	1	0	0
MDV		443	128852	3495	20887	80369	78078	494958	221088	237880	120651	460733	421482	29	0	0
MH		3	1009	27	164	629	611	3876	1731	1863	945	3608	3301	0	0	0
OBUS		2	674	18	109	420	408	2587	1156	1243	631	2408	2203	0	0	0
SBUS		0	143	4	23	89	87	550	246	265	134	512	469	0	0	0
T6		4	1178	32	191	735	714	4525	2021	2175	1103	4212	3853	0	0	0
T7		1	167	5	27	104	101	642	287	309	157	598	547	0	0	0
UBUS		1	368	10	60	229	223	1413	631	679	345	1316	1204	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		2	725	20	118	452	439	2785	1244	1338	679	2592	2371	0	0	0
LDT1		0	57	2	9	35	34	219	98	105	53	203	186	0	0	0
LDT2		0	50	1	8	31	30	192	86	92	47	178	163	0	0	0
LHD1		44	12709	345	2060	7927	7701	48820	21807	23463	11900	45444	41573	3	0	0
LHD2		10	3033	82	492	1892	1838	11651	5204	5600	2840	10846	9922	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	58	2	9	36	35	224	100	108	55	209	191	0	0	0
MH		1	181	5	29	113	109	694	310	333	169	646	591	0	0	0
OBUS		3	926	25	150	578	561	3558	1590	1710	867	3312	3030	0	0	0
SBUS		2	584	16	95	364	354	2244	1002	1078	547	2089	1911	0	0	0
T6		41	11960	324	1939	7460	7247	45943	20522	22080	11199	42766	39123	3	0	0
T7		188	54720	1484	8870	34131	33158	210196	93890	101021	51237	195661	178993	12	0	0
UBUS		3	851	23	138	530	515	3267	1459	1570	796	3041	2782	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		413	89,687	1,879	8,895	28,397	23,744	134,567	55,648	57,630	29,199	115,608	113,717	9	0	0	658,979
LDT1		66	14,297	299	1,419	4,530	3,788	21,465	8,879	9,195	4,659	18,445	18,145	1	0	0	105,122
LDT2		226	49,080	1,028	4,868	15,543	12,996	73,652	30,460	31,544	15,982	63,278	62,245	5	0	0	360,683
LHD1		61	14,483	269	1,160	3,407	2,670	14,422	5,800	5,936	3,026	12,269	0	0	0	0	63,442

Community Greenhouse Gas Inventory

Motor Vehicle Emissions (without regulation)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	7	1,606	30	129	378	296	1,599	643	658	335	1,360	0	0	0	0	7,033
MCY	1	298	7	36	124	109	638	266	272	134	503	461	0	0	0	2,849
MDV	341	74,017	1,551	7,340	23,435	19,595	111,052	45,923	47,559	24,096	95,405	93,844	7	0	0	543,825
MH	3	825	15	66	194	152	821	330	338	172	699	717	0	0	0	4,331
OBUS	2	551	10	44	130	102	548	221	226	115	466	479	0	0	0	2,891
SBUS	0	117	2	9	28	22	117	47	48	24	99	102	0	0	0	615
T6	4	963	18	77	227	178	959	386	395	201	816	837	0	0	0	5,056
T7	1	137	3	11	32	25	136	55	56	29	116	119	0	0	0	718
UBUS	1	301	6	24	71	55	300	120	123	63	255	262	0	0	0	1,579
Total	1,127	246,360	5,116	24,079	76,495	63,732	360,276	148,778	153,982	78,036	309,319	290,928	22	0	0	1,758,250
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	0	106	3	17	66	64	406	181	195	99	378	346	0	0	0	1,860
LDT1	0	9	0	1	5	5	33	15	16	8	30	28	0	0	0	150
LDT2	0	7	0	1	5	5	29	13	14	7	27	24	0	0	0	131
LHD1	9	2,718	74	441	1,695	1,647	10,439	4,663	5,017	2,545	9,717	0	0	0	0	38,955
LHD2	2	651	18	106	406	395	2,502	1,118	1,202	610	2,329	0	0	0	0	9,336
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	9	0	1	5	5	33	15	16	8	31	28	0	0	0	152
MH	1	157	3	17	59	54	323	138	143	71	267	245	0	0	0	1,477
OBUS	4	925	20	103	370	350	2,186	907	991	487	1,808	1,445	0	0	0	9,594
SBUS	2	513	11	54	194	176	1,058	451	468	232	875	802	0	0	0	4,835
T6	43	10,399	232	1,092	3,920	3,575	21,431	9,137	9,482	4,694	17,718	16,235	1	0	0	97,915
T7	304	73,063	1,627	7,678	27,542	25,116	150,579	64,194	66,621	32,979	124,492	114,070	8	0	0	687,969
UBUS	3	897	24	145	560	544	3,446	1,539	1,656	840	3,208	2,935	0	0	0	15,796
Total	369	89,454	2,013	9,657	34,827	31,934	192,466	82,370	85,821	42,579	160,881	136,158	9	0	0	868,539

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	2,626,789	2,383,023	2,383,023

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **11,493,323** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 4,195,062,895 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	800	0	800	5
5 - 10 MPH	665	778	0	1,443	5
10 - 15 MPH	129,603	167,298	355,800	652,701	10
15 - 20 MPH	4,379	6,480	6,845	17,704	15
20 - 25 MPH	19,163	32,031	54,608	105,802	20
25 - 30 MPH	78,269	103,641	225,197	407,107	25
30 - 35 MPH	86,745	137,277	171,480	395,502	30
35 - 40 MPH	510,988	662,086	1,334,132	2,507,207	35
40 - 45 MPH	228,515	278,844	612,561	1,119,920	40
45 - 50 MPH	194,394	256,153	754,432	1,204,979	45
50 - 55 MPH	105,138	148,518	357,499	611,155	50
55 - 60 MPH	466,648	554,845	1,312,348	2,333,841	55
60 - 65 MPH	447,361	555,735	1,131,920	2,135,016	60
65 - 70 MPH	25	33	89	147	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,271,891	2,904,520	6,316,912	11,493,323	

Source:
 Fehr and Peers. 2013. 2020 VMT was found by multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 10 years of VMT growth between 2010 and 2020 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2010 and 2056 VMT: $(((2056 \text{ VMT} - 2010 \text{ VMT}) / 2010 \text{ VMT}) / 46 \text{ years} = .0254)$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2243	652701	17704	105802	407107	395502	2507207	1119920	1204979	611155	2333841	2135016	147	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	40.99%	0.11%	GAS Heavy duty 0.5% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	5.72%	0.01%	Light trucks 44.8% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.28%	0.01%	Passenger 41.5% LDA, MCY
LHD1	2.71%	1.95%	DSL Heavy duty 10.6% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.30%	0.46%	Light trucks 2.4% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.56%	0.00%	Passenger 0.1% LDA, MCY
MDV	19.74%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.10%	0.14%	
SBUS	0.02%	0.09%	
T6	0.18%	1.83%	
T7	0.03%	8.38%	
UBUS	0.06%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1118	835	645	511	424	365	326	302	291	290	301	324	362	388	0
LDT1		1277	953	736	584	484	417	372	345	332	332	344	370	413	443	0
LDT2		1541	1151	889	704	584	503	450	416	401	400	415	446	498	534	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		222	204	176	154	137	124	114	107	101	98	97	97	99	104	0
MDV		1916	1431	1105	875	726	625	559	517	498	497	516	555	620	664	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		363	363	363	363	363	363	363	363	363	363	363	363	363	363	0
LDT1		373	373	373	373	373	373	373	373	373	373	373	373	373	373	0
LDT2		371	371	371	371	371	371	371	371	371	371	371	371	371	371	0
LHD1		533	533	533	533	533	533	533	533	533	533	533	0	0	0	0
LHD2		535	535	535	535	535	535	535	535	535	535	535	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		369	369	369	369	369	369	369	369	369	369	369	369	369	369	0
MH		2381	2162	1775	1457	1307	1226	1160	1107	1068	1042	1030	1032	1047	0	0
OBUS		3085	2487	2025	1711	1595	1551	1530	1421	1443	1399	1360	1188	1365	0	0
SBUS		2650	2189	1798	1418	1323	1242	1175	1121	1081	1055	1043	1045	0	0	0
T6		2621	2165	1778	1403	1309	1228	1162	1109	1070	1044	1032	1034	1049	0	0
T7		4026	3326	2731	2156	2010	1887	1784	1703	1643	1603	1585	1587	1611	0	0
UBUS		2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		919	267550	7257	43370	166878	162121	1027734	459069	493935	250520	956669	875168	60	0	0
LDT1		128	37366	1014	6057	23306	22642	143534	64114	68983	34988	133609	122226	8	0	0
LDT2		365	106233	2881	17220	66260	64371	408069	182276	196120	99470	379852	347491	24	0	0
LHD1		61	17716	481	2872	11050	10735	68051	30397	32706	16588	63346	57949	4	0	0
LHD2		7	1964	53	318	1225	1190	7544	3370	3626	1839	7022	6424	0	0	0
MCY		12	3626	98	588	2262	2197	13929	6222	6695	3395	12966	11862	1	0	0
MDV		443	128852	3495	20887	80369	78078	494958	221088	237880	120651	460733	421482	29	0	0
MH		3	1009	27	164	629	611	3876	1731	1863	945	3608	3301	0	0	0
OBUS		2	674	18	109	420	408	2587	1156	1243	631	2408	2203	0	0	0
SBUS		0	143	4	23	89	87	550	246	265	134	512	469	0	0	0
T6		4	1178	32	191	735	714	4525	2021	2175	1103	4212	3853	0	0	0
T7		1	167	5	27	104	101	642	287	309	157	598	547	0	0	0
UBUS		1	368	10	60	229	223	1413	631	679	345	1316	1204	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		2	725	20	118	452	439	2785	1244	1338	679	2592	2371	0	0	0
LDT1		0	57	2	9	35	34	219	98	105	53	203	186	0	0	0
LDT2		0	50	1	8	31	30	192	86	92	47	178	163	0	0	0
LHD1		44	12709	345	2060	7927	7701	48820	21807	23463	11900	45444	41573	3	0	0
LHD2		10	3033	82	492	1892	1838	11651	5204	5600	2840	10846	9922	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	58	2	9	36	35	224	100	108	55	209	191	0	0	0
MH		1	181	5	29	113	109	694	310	333	169	646	591	0	0	0
OBUS		3	926	25	150	578	561	3558	1590	1710	867	3312	3030	0	0	0
SBUS		2	584	16	95	364	354	2244	1002	1078	547	2089	1911	0	0	0
T6		41	11960	324	1939	7460	7247	45943	20522	22080	11199	42766	39123	3	0	0
T7		188	54720	1484	8870	34131	33158	210196	93890	101021	51237	195661	178993	12	0	0
UBUS		3	851	23	138	530	515	3267	1459	1570	796	3041	2782	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		413	89,687	1,879	8,895	28,397	23,744	134,567	55,648	57,630	29,199	115,608	113,717	9	0	0	658,979
LDT1		66	14,297	299	1,419	4,530	3,788	21,465	8,879	9,195	4,659	18,445	18,145	1	0	0	105,122
LDT2		226	49,080	1,028	4,868	15,543	12,996	73,652	30,460	31,544	15,982	63,278	62,245	5	0	0	360,683
LHD1		61	14,483	269	1,160	3,407	2,670	14,422	5,800	5,936	3,026	12,269	0	0	0	0	63,442

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	7	1,606	30	129	378	296	1,599	643	658	335	1,360	0	0	0	0	7,033
MCY	1	298	7	36	124	109	638	266	272	134	503	461	0	0	0	2,849
MDV	341	74,017	1,551	7,340	23,435	19,595	111,052	45,923	47,559	24,096	95,405	93,844	7	0	0	543,825
MH	3	825	15	66	194	152	821	330	338	172	699	717	0	0	0	4,331
OBUS	2	551	10	44	130	102	548	221	226	115	466	479	0	0	0	2,891
SBUS	0	117	2	9	28	22	117	47	48	24	99	102	0	0	0	615
T6	4	963	18	77	227	178	959	386	395	201	816	837	0	0	0	5,056
T7	1	137	3	11	32	25	136	55	56	29	116	119	0	0	0	718
UBUS	1	301	6	24	71	55	300	120	123	63	255	262	0	0	0	1,579
Total	1,127	246,360	5,116	24,079	76,495	63,732	360,276	148,778	153,982	78,036	309,319	290,928	22	0	0	1,758,250
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	0	106	3	17	66	64	406	181	195	99	378	346	0	0	0	1,860
LDT1	0	9	0	1	5	5	33	15	16	8	30	28	0	0	0	150
LDT2	0	7	0	1	5	5	29	13	14	7	27	24	0	0	0	131
LHD1	9	2,718	74	441	1,695	1,647	10,439	4,663	5,017	2,545	9,717	0	0	0	0	38,955
LHD2	2	651	18	106	406	395	2,502	1,118	1,202	610	2,329	0	0	0	0	9,336
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	9	0	1	5	5	33	15	16	8	31	28	0	0	0	152
MH	1	157	3	17	59	54	323	138	143	71	267	245	0	0	0	1,477
OBUS	4	925	20	103	370	350	2,186	907	991	487	1,808	1,445	0	0	0	9,594
SBUS	2	513	11	54	194	176	1,058	451	468	232	875	802	0	0	0	4,835
T6	43	10,399	232	1,092	3,920	3,575	21,431	9,137	9,482	4,694	17,718	16,235	1	0	0	97,915
T7	304	73,063	1,627	7,678	27,542	25,116	150,579	64,194	66,621	32,979	124,492	114,070	8	0	0	687,969
UBUS	3	897	24	145	560	544	3,446	1,539	1,656	840	3,208	2,935	0	0	0	15,796
Total	369	89,454	2,013	9,657	34,827	31,934	192,466	82,370	85,821	42,579	160,881	136,158	9	0	0	868,539

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	2,626,789	2,383,023	2,383,023

EMFAC 2011
 2005 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter: region - County: Fresno, year - 2005, season - annual average, vehicle category - EMFAC2007, model year - aggregated, speed - all speeds, fuel - all) Website: <http://www.arb.ca.gov/emfac/>
 2005 Emission Rates will be used for BAU calculations.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	LDA	GAS	5	574.3459975	1117.902588	1117.90259	0.003%
Fresno	2005	LDA	DSL	5	1.55629378	362.9037298	362.90373	0.000%
Fresno	2005	LDA	GAS	10	1560.70567	834.9088117	834.908812	0.008%
Fresno	2005	LDA	DSL	10	4.229012934	362.9037176	362.903718	0.000%
Fresno	2005	LDA	GAS	15	1481.313242	644.9016731	644.901673	0.007%
Fresno	2005	LDA	DSL	15	4.013884191	362.9037424	362.903742	0.000%
Fresno	2005	LDA	GAS	20	384673.2535	510.8041631	510.804163	1.912%
Fresno	2005	LDA	DSL	20	1042.341227	362.903737	362.903737	0.005%
Fresno	2005	LDA	GAS	25	46631.55871	423.823398	423.823398	0.232%
Fresno	2005	LDA	DSL	25	126.3565868	362.903733	362.903733	0.001%
Fresno	2005	LDA	GAS	30	142960.6643	364.7820036	364.782004	0.711%
Fresno	2005	LDA	DSL	30	387.3776096	362.9037333	362.903733	0.002%
Fresno	2005	LDA	GAS	35	556848.446	326.1153018	326.115302	2.768%
Fresno	2005	LDA	DSL	35	1508.880862	362.9037744	362.903774	0.008%
Fresno	2005	LDA	GAS	40	1045053.417	301.9173486	301.917349	5.196%
Fresno	2005	LDA	DSL	40	2831.760101	362.9037532	362.903753	0.014%
Fresno	2005	LDA	GAS	45	898804.646	290.6000061	290.600006	4.469%
Fresno	2005	LDA	DSL	45	2435.472726	362.9037268	362.903727	0.012%
Fresno	2005	LDA	GAS	50	1236247.625	290.295843	290.295843	6.146%
Fresno	2005	LDA	DSL	50	3349.835262	362.9037543	362.903754	0.017%
Fresno	2005	LDA	GAS	55	881689.2606	300.9810314	300.981031	4.383%
Fresno	2005	LDA	DSL	55	2389.095509	362.90373	362.90373	0.012%
Fresno	2005	LDA	GAS	60	1065707.872	323.6299465	323.629947	5.298%
Fresno	2005	LDA	DSL	60	2887.727003	362.9037118	362.903712	0.014%
Fresno	2005	LDA	GAS	65	1052205.277	361.6105735	361.610573	5.231%
Fresno	2005	LDA	DSL	65	2851.139136	362.903729	362.903729	0.014%
Fresno	2005	LDA	GAS	70	930481.937	387.59416	387.59416	4.626%
Fresno	2005	LDA	DSL	70	2521.30786	362.9037511	362.903751	0.013%
Fresno	2005	LDT1	GAS	5	80.2134059	1277.383889	1277.38389	0.000%
Fresno	2005	LDT1	DSL	5	0.122139063	373.2062411	373.206241	0.000%
Fresno	2005	LDT1	GAS	10	217.9688072	952.9532874	952.953287	0.001%
Fresno	2005	LDT1	DSL	10	0.331895978	373.2062264	373.206226	0.000%
Fresno	2005	LDT1	GAS	15	206.8808052	735.6841431	735.684143	0.001%
Fresno	2005	LDT1	DSL	15	0.315012523	373.2062425	373.206242	0.000%
Fresno	2005	LDT1	GAS	20	53723.62363	583.5347772	583.534777	0.267%
Fresno	2005	LDT1	DSL	20	81.803698	373.206226	373.206226	0.000%
Fresno	2005	LDT1	GAS	25	6512.582938	484.1298404	484.12984	0.032%
Fresno	2005	LDT1	DSL	25	9.916557	373.2062055	373.206206	0.000%
Fresno	2005	LDT1	GAS	30	19965.94701	416.6904394	416.690439	0.099%
Fresno	2005	LDT1	DSL	30	30.4016764	373.2062064	373.206206	0.000%
Fresno	2005	LDT1	GAS	35	77769.69216	372.4778067	372.477807	0.387%
Fresno	2005	LDT1	DSL	35	118.418068	373.2062534	373.206253	0.001%
Fresno	2005	LDT1	GAS	40	145952.6125	344.9252398	344.92524	0.726%
Fresno	2005	LDT1	DSL	40	222.238591	373.2062401	373.20624	0.001%
Fresno	2005	LDT1	GAS	45	125527.4358	331.9868346	331.986835	0.624%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	LDT1	DSL	45	191.137656	373.2062577	373.206258	0.001%
Fresno	2005	LDT1	GAS	50	172654.8816	331.6326825	331.632682	0.858%
Fresno	2005	LDT1	DSL	50	262.897513	373.2062113	373.206211	0.001%
Fresno	2005	LDT1	GAS	55	123137.0906	343.8328444	343.832844	0.612%
Fresno	2005	LDT1	DSL	55	187.497965	373.2061963	373.206196	0.001%
Fresno	2005	LDT1	GAS	60	148837.2054	369.7469417	369.746942	0.740%
Fresno	2005	LDT1	DSL	60	226.630859	373.206311	373.206311	0.001%
Fresno	2005	LDT1	GAS	65	146951.4277	413.1036658	413.103666	0.731%
Fresno	2005	LDT1	DSL	65	223.759469	373.2062322	373.206232	0.001%
Fresno	2005	LDT1	GAS	70	129951.4999	442.7709544	442.770954	0.646%
Fresno	2005	LDT1	DSL	70	197.874089	373.2062236	373.206224	0.001%
Fresno	2005	LDT2	GAS	5	228.0478692	1541.14964	1541.14964	0.001%
Fresno	2005	LDT2	DSL	5	0.107040842	371.0954996	371.0955	0.000%
Fresno	2005	LDT2	GAS	10	619.688516	1150.709694	1150.70969	0.003%
Fresno	2005	LDT2	DSL	10	0.290868673	371.095504	371.095504	0.000%
Fresno	2005	LDT2	GAS	15	588.1651566	888.7202414	888.720241	0.003%
Fresno	2005	LDT2	DSL	15	0.276072268	371.0954901	371.09549	0.000%
Fresno	2005	LDT2	GAS	20	152737.0474	704.1586177	704.158618	0.759%
Fresno	2005	LDT2	DSL	20	71.691539	371.0954812	371.095481	0.000%
Fresno	2005	LDT2	GAS	25	18515.36584	584.2418904	584.24189	0.092%
Fresno	2005	LDT2	DSL	25	8.6907219	371.095481	371.095481	0.000%
Fresno	2005	LDT2	GAS	30	56763.47295	502.8540511	502.854051	0.282%
Fresno	2005	LDT2	DSL	30	26.6435743	371.0954791	371.095479	0.000%
Fresno	2005	LDT2	GAS	35	221100.3455	449.539312	449.539312	1.099%
Fresno	2005	LDT2	DSL	35	103.779821	371.0955143	371.095514	0.001%
Fresno	2005	LDT2	GAS	40	414945.4046	416.2074653	416.207465	2.063%
Fresno	2005	LDT2	DSL	40	194.766579	371.0954985	371.095498	0.001%
Fresno	2005	LDT2	GAS	45	356876.2901	400.603499	400.603499	1.774%
Fresno	2005	LDT2	DSL	45	167.510172	371.0955097	371.09551	0.001%
Fresno	2005	LDT2	GAS	50	490860.2714	400.1823445	400.182345	2.440%
Fresno	2005	LDT2	DSL	50	230.399436	371.09548	371.09548	0.001%
Fresno	2005	LDT2	GAS	55	350080.5216	414.9103501	414.91035	1.740%
Fresno	2005	LDT2	DSL	55	164.320381	371.0955152	371.095515	0.001%
Fresno	2005	LDT2	GAS	60	423146.3014	446.1440566	446.144057	2.104%
Fresno	2005	LDT2	DSL	60	198.615926	371.0954932	371.095493	0.001%
Fresno	2005	LDT2	GAS	65	417785.0125	498.4924137	498.492414	2.077%
Fresno	2005	LDT2	DSL	65	196.099447	371.0954901	371.09549	0.001%
Fresno	2005	LDT2	GAS	70	369453.9847	534.3069769	534.306977	1.837%
Fresno	2005	LDT2	DSL	70	173.41387	371.0955028	371.095503	0.001%
Fresno	2005	LHD1	GAS	5	15493.27829	2513.497349	2513.49735	0.077%
Fresno	2005	LHD1	DSL	5	6887.103617	532.5794	532.5794	0.034%
Fresno	2005	LHD1	GAS	10	40399.97733	2036.128182	2036.12818	0.201%
Fresno	2005	LHD1	DSL	10	22902.76288	532.5792393	532.579239	0.114%
Fresno	2005	LHD1	GAS	15	91996.19282	1392.429536	1392.42954	0.457%
Fresno	2005	LHD1	DSL	15	49600.82188	532.5792921	532.579292	0.247%
Fresno	2005	LHD1	GAS	20	106300.888	1006.068544	1006.06854	0.528%
Fresno	2005	LHD1	DSL	20	54378.52199	532.5792617	532.579262	0.270%
Fresno	2005	LHD1	GAS	25	81884.45437	768.0121288	768.012129	0.407%
Fresno	2005	LHD1	DSL	25	58199.51987	532.5793513	532.579351	0.289%
Fresno	2005	LHD1	GAS	30	72412.73099	619.4335923	619.433592	0.360%
Fresno	2005	LHD1	DSL	30	49127.77262	532.5792941	532.579294	0.244%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of
								Total VMT
Fresno	2005	LHD1	GAS	35	27058.00658	527.8465902	527.84659	0.135%
Fresno	2005	LHD1	DSL	35	25926.63204	532.579317	532.579317	0.129%
Fresno	2005	LHD1	GAS	40	7986.90704	475.2331456	475.233146	0.040%
Fresno	2005	LHD1	DSL	40	14232.8744	532.5792642	532.579264	0.071%
Fresno	2005	LHD1	GAS	45	9832.585266	452.0558438	452.055844	0.049%
Fresno	2005	LHD1	DSL	45	15361.95268	532.5792928	532.579293	0.076%
Fresno	2005	LHD1	GAS	50	72602.43931	454.3217938	454.321794	0.361%
Fresno	2005	LHD1	DSL	50	59317.36357	532.5793236	532.579324	0.295%
Fresno	2005	LHD1	GAS	55	19969.09783	482.4155587	482.415559	0.099%
Fresno	2005	LHD1	DSL	55	35721.45554	532.5792563	532.579256	0.178%
Fresno	2005	LHD2	GAS	5	1717.546588	2513.497194	2513.49719	0.009%
Fresno	2005	LHD2	DSL	5	1643.654028	534.8240705	534.824071	0.008%
Fresno	2005	LHD2	GAS	10	4478.641561	2036.128258	2036.12826	0.022%
Fresno	2005	LHD2	DSL	10	5465.899708	534.8239928	534.823993	0.027%
Fresno	2005	LHD2	GAS	15	10198.47067	1392.429599	1392.4296	0.051%
Fresno	2005	LHD2	DSL	15	11837.57275	534.8239985	534.823999	0.059%
Fresno	2005	LHD2	GAS	20	11784.25424	1006.068517	1006.06852	0.059%
Fresno	2005	LHD2	DSL	20	12977.80233	534.8240078	534.824008	0.065%
Fresno	2005	LHD2	GAS	25	9077.508294	768.0121044	768.012104	0.045%
Fresno	2005	LHD2	DSL	25	13889.71073	534.8240484	534.824048	0.069%
Fresno	2005	LHD2	GAS	30	8027.49616	619.4336218	619.433622	0.040%
Fresno	2005	LHD2	DSL	30	11724.67582	534.824037	534.824037	0.058%
Fresno	2005	LHD2	GAS	35	2999.584099	527.846466	527.846466	0.015%
Fresno	2005	LHD2	DSL	35	6187.566882	534.8240546	534.824055	0.031%
Fresno	2005	LHD2	GAS	40	885.4087913	475.2331522	475.233152	0.004%
Fresno	2005	LHD2	DSL	40	3396.771437	534.8241463	534.824146	0.017%
Fresno	2005	LHD2	GAS	45	1090.016138	452.0558109	452.055811	0.005%
Fresno	2005	LHD2	DSL	45	3666.233792	534.824068	534.824068	0.018%
Fresno	2005	LHD2	GAS	50	8048.527309	454.3218106	454.321811	0.040%
Fresno	2005	LHD2	DSL	50	14156.48996	534.8240631	534.824063	0.070%
Fresno	2005	LHD2	GAS	55	2213.724954	482.415483	482.415483	0.011%
Fresno	2005	LHD2	DSL	55	8525.166441	534.8240334	534.824033	0.042%
Fresno	2005	MCY	GAS	5	7.7843384	221.6010944	221.601094	0.000%
Fresno	2005	MCY	GAS	10	21.1528613	204.3809145	204.380914	0.000%
Fresno	2005	MCY	GAS	15	20.07682252	176.0040917	176.004092	0.000%
Fresno	2005	MCY	GAS	20	5213.628487	154.0664735	154.066474	0.026%
Fresno	2005	MCY	GAS	25	632.0158685	137.0847399	137.08474	0.003%
Fresno	2005	MCY	GAS	30	1937.602297	123.9888015	123.988801	0.010%
Fresno	2005	MCY	GAS	35	7547.186875	114.0069527	114.006953	0.038%
Fresno	2005	MCY	GAS	40	14164.02356	106.5882594	106.588259	0.070%
Fresno	2005	MCY	GAS	45	12181.85384	101.351138	101.351138	0.061%
Fresno	2005	MCY	GAS	50	16755.35397	98.0507808	98.0507808	0.083%
Fresno	2005	MCY	GAS	55	11949.88349	96.5621063	96.5621063	0.059%
Fresno	2005	MCY	GAS	60	14443.95889	96.87654461	96.8765446	0.072%
Fresno	2005	MCY	GAS	65	14260.95394	99.1149102	99.1149102	0.071%
Fresno	2005	MCY	GAS	70	12611.18911	103.5614952	103.561495	0.063%
Fresno	2005	MDV	GAS	5	276.6057878	1915.561564	1915.56156	0.001%
Fresno	2005	MDV	DSL	5	0.125445122	369.0636663	369.063666	0.000%
Fresno	2005	MDV	GAS	10	751.6379153	1430.71487	1430.71487	0.004%
Fresno	2005	MDV	DSL	10	0.34087976	369.0636324	369.063632	0.000%
Fresno	2005	MDV	GAS	15	713.402331	1105.142376	1105.14238	0.004%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	MDV	DSL	15	0.323539357	369.0636164	369.063616	0.000%
Fresno	2005	MDV	GAS	20	185259.1327	875.2888262	875.288826	0.921%
Fresno	2005	MDV	DSL	20	84.01796496	369.0636582	369.063658	0.000%
Fresno	2005	MDV	GAS	25	22457.81699	726.2455563	726.245556	0.112%
Fresno	2005	MDV	DSL	25	10.18497853	369.0636516	369.063652	0.000%
Fresno	2005	MDV	GAS	30	68850.04116	625.0744431	625.074443	0.342%
Fresno	2005	MDV	DSL	30	31.22459012	369.0636522	369.063652	0.000%
Fresno	2005	MDV	GAS	35	268178.9233	558.8198391	558.819839	1.333%
Fresno	2005	MDV	DSL	35	121.6234022	369.0637076	369.063708	0.001%
Fresno	2005	MDV	GAS	40	503299.0839	517.3492783	517.349278	2.502%
Fresno	2005	MDV	DSL	40	228.2541587	369.0636653	369.063665	0.001%
Fresno	2005	MDV	GAS	45	432865.4758	497.9571493	497.957149	2.152%
Fresno	2005	MDV	DSL	45	196.3113735	369.0636861	369.063686	0.001%
Fresno	2005	MDV	GAS	50	595378.4851	497.4363565	497.436356	2.960%
Fresno	2005	MDV	DSL	50	270.0136082	369.0636733	369.063673	0.001%
Fresno	2005	MDV	GAS	55	424622.6866	515.7464096	515.74641	2.111%
Fresno	2005	MDV	DSL	55	192.5731227	369.0637145	369.063714	0.001%
Fresno	2005	MDV	GAS	60	513246.2809	554.5537379	554.553738	2.552%
Fresno	2005	MDV	DSL	60	232.7653436	369.0636774	369.063677	0.001%
Fresno	2005	MDV	GAS	65	506743.4137	619.6376375	619.637637	2.519%
Fresno	2005	MDV	DSL	65	229.8161802	369.0636924	369.063692	0.001%
Fresno	2005	MDV	GAS	70	448121.3124	664.1628397	664.16284	2.228%
Fresno	2005	MDV	DSL	70	203.2301423	369.0636551	369.063655	0.001%
Fresno	2005	MH	GAS	5	268.9167968	2513.497406	2513.49741	0.001%
Fresno	2005	MH	DSL	5	44.76225056	2381.129731	2381.12973	0.000%
Fresno	2005	MH	GAS	10	1351.847182	2036.128315	2036.12831	0.007%
Fresno	2005	MH	DSL	10	222.8096365	2162.072949	2162.07295	0.001%
Fresno	2005	MH	GAS	15	1707.614697	1392.429658	1392.42966	0.008%
Fresno	2005	MH	DSL	15	300.715632	1775.243505	1775.24351	0.001%
Fresno	2005	MH	GAS	20	1771.215993	1006.068537	1006.06854	0.009%
Fresno	2005	MH	DSL	20	318.91989	1456.791888	1456.79189	0.002%
Fresno	2005	MH	GAS	25	1973.543913	768.012138	768.012138	0.010%
Fresno	2005	MH	DSL	25	332.1424004	1306.661906	1306.66191	0.002%
Fresno	2005	MH	GAS	30	2231.372516	619.4336513	619.433651	0.011%
Fresno	2005	MH	DSL	30	399.3743491	1226.495736	1226.49574	0.002%
Fresno	2005	MH	GAS	35	2773.257546	527.8465727	527.846573	0.014%
Fresno	2005	MH	DSL	35	470.9149121	1159.967885	1159.96789	0.002%
Fresno	2005	MH	GAS	40	3452.419773	475.233224	475.233224	0.017%
Fresno	2005	MH	DSL	40	584.5676013	1107.078048	1107.07805	0.003%
Fresno	2005	MH	GAS	45	3148.370866	452.0558634	452.055863	0.016%
Fresno	2005	MH	DSL	45	478.6833316	1067.826603	1067.8266	0.002%
Fresno	2005	MH	GAS	50	3064.012004	454.3218205	454.321821	0.015%
Fresno	2005	MH	DSL	50	535.7245191	1042.213217	1042.21322	0.003%
Fresno	2005	MH	GAS	55	4007.448442	482.4155989	482.415599	0.020%
Fresno	2005	MH	DSL	55	785.0557197	1030.238195	1030.2382	0.004%
Fresno	2005	MH	GAS	60	4624.41305	541.2091675	541.209168	0.023%
Fresno	2005	MH	DSL	60	943.3760148	1031.901337	1031.90134	0.005%
Fresno	2005	MH	GAS	65	722.62303	641.4979244	641.497924	0.004%
Fresno	2005	MH	DSL	65	148.4605629	1047.202697	1047.2027	0.001%
Fresno	2005	OBUS	GAS	5	179.4898447	2513.497341	2513.49734	0.001%
Fresno	2005	OBUS	DSL	5	165.7644542	3084.635701	3084.6357	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	OBUS	GAS	10	902.2969282	2036.128585	2036.12858	0.004%
Fresno	2005	OBUS	DSL	10	764.4488042	2486.733654	2486.73365	0.004%
Fresno	2005	OBUS	GAS	15	1139.755796	1392.429568	1392.42957	0.006%
Fresno	2005	OBUS	DSL	15	1006.387031	2024.544507	2024.54451	0.005%
Fresno	2005	OBUS	GAS	20	1182.206665	1006.068712	1006.06871	0.006%
Fresno	2005	OBUS	DSL	20	1343.731614	1711.279078	1711.27908	0.007%
Fresno	2005	OBUS	GAS	25	1317.251509	768.0121314	768.012131	0.007%
Fresno	2005	OBUS	DSL	25	1394.142051	1595.098427	1595.09843	0.007%
Fresno	2005	OBUS	GAS	30	1489.340651	619.4336132	619.433613	0.007%
Fresno	2005	OBUS	DSL	30	1945.026661	1550.74938	1550.74938	0.010%
Fresno	2005	OBUS	GAS	35	1851.024293	527.8466067	527.846607	0.009%
Fresno	2005	OBUS	DSL	35	2872.193717	1530.258857	1530.25886	0.014%
Fresno	2005	OBUS	GAS	40	2304.334444	475.2331835	475.233184	0.011%
Fresno	2005	OBUS	DSL	40	3065.466762	1421.24912	1421.24912	0.015%
Fresno	2005	OBUS	GAS	45	2101.3955	452.0558515	452.055852	0.010%
Fresno	2005	OBUS	DSL	45	3431.453572	1443.331847	1443.33185	0.017%
Fresno	2005	OBUS	GAS	50	2045.089835	454.321748	454.321748	0.010%
Fresno	2005	OBUS	DSL	50	3664.621488	1399.471266	1399.47127	0.018%
Fresno	2005	OBUS	GAS	55	2674.791345	482.4155895	482.415589	0.013%
Fresno	2005	OBUS	DSL	55	4802.489099	1359.79194	1359.79194	0.024%
Fresno	2005	OBUS	GAS	60	3086.587339	541.2091188	541.209119	0.015%
Fresno	2005	OBUS	DSL	60	3246.411046	1188.092655	1188.09266	0.016%
Fresno	2005	OBUS	GAS	65	482.3182765	641.497927	641.497927	0.002%
Fresno	2005	OBUS	DSL	65	845.5605614	1365.372637	1365.37264	0.004%
Fresno	2005	SBUS	GAS	5	43.72972372	2513.49706	2513.49706	0.000%
Fresno	2005	SBUS	DSL	5	178.2500641	2650.118082	2650.11808	0.001%
Fresno	2005	SBUS	GAS	10	153.2704446	2036.128028	2036.12803	0.001%
Fresno	2005	SBUS	DSL	10	624.7573386	2189.204641	2189.20464	0.003%
Fresno	2005	SBUS	GAS	15	306.5408773	1392.429627	1392.42963	0.002%
Fresno	2005	SBUS	DSL	15	1249.514677	1797.52678	1797.52678	0.006%
Fresno	2005	SBUS	GAS	20	416.0794089	1006.068501	1006.0685	0.002%
Fresno	2005	SBUS	DSL	20	1696.012951	1418.069831	1418.06983	0.008%
Fresno	2005	SBUS	GAS	25	656.8093052	768.0121132	768.012113	0.003%
Fresno	2005	SBUS	DSL	25	2677.270418	1323.090846	1323.09085	0.013%
Fresno	2005	SBUS	GAS	30	787.9984747	619.4336026	619.433603	0.004%
Fresno	2005	SBUS	DSL	30	3212.02061	1241.920828	1241.92083	0.016%
Fresno	2005	SBUS	GAS	35	808.7813293	527.8465156	527.846516	0.004%
Fresno	2005	SBUS	DSL	35	3296.735071	1174.559776	1174.55978	0.016%
Fresno	2005	SBUS	GAS	40	545.9701739	475.2331343	475.233134	0.003%
Fresno	2005	SBUS	DSL	40	2225.470458	1121.007691	1121.00769	0.011%
Fresno	2005	SBUS	GAS	45	261.9433353	452.0558193	452.055819	0.001%
Fresno	2005	SBUS	DSL	45	1067.727156	1081.264572	1081.26457	0.005%
Fresno	2005	SBUS	GAS	50	131.1891745	454.3217491	454.321749	0.001%
Fresno	2005	SBUS	DSL	50	534.7501924	1055.33042	1055.33042	0.003%
Fresno	2005	SBUS	GAS	55	195.2667083	482.415443	482.415443	0.001%
Fresno	2005	SBUS	DSL	55	795.9414888	1043.205234	1043.20523	0.004%
Fresno	2005	SBUS	GAS	60	108.6750878	541.2091468	541.209147	0.001%
Fresno	2005	SBUS	DSL	60	442.9788178	1044.889015	1044.88902	0.002%
Fresno	2005	T6	GAS	5	313.9394	2513.49736	2513.49736	0.002%
Fresno	2005	T6	DSL	5	2964.362997	2621.415259	2621.41526	0.015%
Fresno	2005	T6	GAS	10	1578.176144	2036.128442	2036.12844	0.008%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	T6	DSL	10	14755.48228	2165.493866	2165.49387	0.073%
Fresno	2005	T6	GAS	15	1993.506875	1392.42983	1392.42983	0.010%
Fresno	2005	T6	DSL	15	19914.77964	1778.058179	1778.05818	0.099%
Fresno	2005	T6	GAS	20	2067.756551	1006.068559	1006.06856	0.010%
Fresno	2005	T6	DSL	20	21120.34755	1402.711041	1402.71104	0.105%
Fresno	2005	T6	GAS	25	2303.958615	768.012209	768.012209	0.011%
Fresno	2005	T6	DSL	25	21996.00436	1308.760752	1308.76075	0.109%
Fresno	2005	T6	GAS	30	2604.953592	619.4336025	619.433602	0.013%
Fresno	2005	T6	DSL	30	26448.41322	1228.469867	1228.46987	0.131%
Fresno	2005	T6	GAS	35	3237.56208	527.8465737	527.846574	0.016%
Fresno	2005	T6	DSL	35	31186.16258	1161.838388	1161.83839	0.155%
Fresno	2005	T6	GAS	40	4030.43084	475.2332482	475.233248	0.020%
Fresno	2005	T6	DSL	40	38712.76602	1108.866313	1108.86631	0.192%
Fresno	2005	T6	GAS	45	3675.47757	452.0558736	452.055874	0.018%
Fresno	2005	T6	DSL	45	31700.62212	1069.553643	1069.55364	0.158%
Fresno	2005	T6	GAS	50	3576.99512	454.3217943	454.321794	0.018%
Fresno	2005	T6	DSL	50	35478.15139	1043.900377	1043.90038	0.176%
Fresno	2005	T6	GAS	55	4678.38379	482.4155587	482.415559	0.023%
Fresno	2005	T6	DSL	55	51990.01588	1031.906517	1031.90652	0.258%
Fresno	2005	T6	GAS	60	5398.64157	541.2092298	541.20923	0.027%
Fresno	2005	T6	DSL	60	62474.71663	1033.572061	1033.57206	0.311%
Fresno	2005	T6	GAS	65	843.606066	641.4979114	641.497911	0.004%
Fresno	2005	T6	DSL	65	9831.744097	1048.89701	1048.89701	0.049%
Fresno	2005	T7	GAS	5	18.76846249	2513.497347	2513.49735	0.000%
Fresno	2005	T7	DSL	5	6085.370392	4025.733112	4025.73311	0.030%
Fresno	2005	T7	GAS	10	91.73117308	2036.127866	2036.12787	0.000%
Fresno	2005	T7	DSL	10	23246.39627	3325.570158	3325.57016	0.116%
Fresno	2005	T7	GAS	15	100.034277	1392.429565	1392.42957	0.000%
Fresno	2005	T7	DSL	15	28430.53281	2730.581376	2730.58138	0.141%
Fresno	2005	T7	GAS	20	170.9568883	1006.068425	1006.06843	0.001%
Fresno	2005	T7	DSL	20	70220.90117	2156.026899	2156.0269	0.349%
Fresno	2005	T7	GAS	25	223.1096354	768.012027	768.012027	0.001%
Fresno	2005	T7	DSL	25	64214.81804	2009.876716	2009.87672	0.319%
Fresno	2005	T7	GAS	30	407.4400111	619.433607	619.433607	0.002%
Fresno	2005	T7	DSL	30	108412.4915	1886.573218	1886.57322	0.539%
Fresno	2005	T7	GAS	35	724.6866805	527.8465816	527.846582	0.004%
Fresno	2005	T7	DSL	35	195036.7831	1784.246602	1784.2466	0.970%
Fresno	2005	T7	GAS	40	631.7265342	475.2333056	475.233306	0.003%
Fresno	2005	T7	DSL	40	184058.0666	1702.896867	1702.89687	0.915%
Fresno	2005	T7	GAS	45	668.4343308	452.0557651	452.055765	0.003%
Fresno	2005	T7	DSL	45	257693.2211	1642.524014	1642.52401	1.281%
Fresno	2005	T7	GAS	50	699.3715848	454.3217173	454.321717	0.003%
Fresno	2005	T7	DSL	50	267994.6167	1603.128043	1603.12804	1.332%
Fresno	2005	T7	GAS	55	1026.625606	482.4155395	482.415539	0.005%
Fresno	2005	T7	DSL	55	326803.0314	1584.708954	1584.70895	1.625%
Fresno	2005	T7	GAS	60	253.3729539	541.2091887	541.209189	0.001%
Fresno	2005	T7	DSL	60	99555.62045	1587.266747	1587.26675	0.495%
Fresno	2005	T7	GAS	65	135.80266	641.4978614	641.497861	0.001%
Fresno	2005	T7	DSL	65	54528.61248	1610.801421	1610.80142	0.271%
Fresno	2005	UBUS	GAS	5	112.3655482	2513.497178	2513.49718	0.001%
Fresno	2005	UBUS	DSL	5	259.736822	2627.453122	2627.45312	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	UBUS	GAS	10	403.3140682	2036.128273	2036.12827	0.002%
Fresno	2005	UBUS	DSL	10	932.274273	2627.453223	2627.45322	0.005%
Fresno	2005	UBUS	GAS	15	806.6280844	1392.429514	1392.42951	0.004%
Fresno	2005	UBUS	DSL	15	1864.54857	2627.453199	2627.4532	0.009%
Fresno	2005	UBUS	GAS	20	1064.467933	1006.06853	1006.06853	0.005%
Fresno	2005	UBUS	DSL	20	2460.55387	2627.453313	2627.45331	0.012%
Fresno	2005	UBUS	GAS	25	1603.164937	768.0121541	768.012154	0.008%
Fresno	2005	UBUS	DSL	25	3705.77074	2627.453153	2627.45315	0.018%
Fresno	2005	UBUS	GAS	30	2006.478844	619.4336943	619.433694	0.010%
Fresno	2005	UBUS	DSL	30	4638.04437	2627.453188	2627.45319	0.023%
Fresno	2005	UBUS	GAS	35	1966.340307	527.8465849	527.846585	0.010%
Fresno	2005	UBUS	DSL	35	4545.26272	2627.453585	2627.45358	0.023%
Fresno	2005	UBUS	GAS	40	1417.551931	475.2332242	475.233224	0.007%
Fresno	2005	UBUS	DSL	40	3276.71961	2627.453246	2627.45325	0.016%
Fresno	2005	UBUS	GAS	45	617.9537663	452.0558589	452.055859	0.003%
Fresno	2005	UBUS	DSL	45	1428.421313	2627.453287	2627.45329	0.007%
Fresno	2005	UBUS	GAS	50	313.9658901	454.3218054	454.321805	0.002%
Fresno	2005	UBUS	DSL	50	725.74291	2627.453219	2627.45322	0.004%
Fresno	2005	UBUS	GAS	55	389.2542268	482.4155339	482.415534	0.002%
Fresno	2005	UBUS	DSL	55	899.774456	2627.453379	2627.45338	0.004%
Fresno	2005	UBUS	GAS	60	637.1160815	541.2091431	541.209143	0.003%
Fresno	2005	UBUS	DSL	60	1472.715687	2627.453055	2627.45305	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide	0.504
Methane	0.000031
Nitrous oxide	0.000011

Used average of 2004-2006 historical emission factors.

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions MTCO ₂ e
			CO ₂	CH ₄	N ₂ O	
Residential	1,694,412,000	2,610	426,992	26.3	9.3	390,488
Commercial	1,800,825,042	7,503	453,808	27.9	9.9	415,012
Industrial	0		0	0.0	0.0	0
Total	3,495,237,042		880,800	54.2	19.2	805,500

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions MTCO ₂ e
			CO ₂	CH ₄	N ₂ O	
Residential	89,589,600	138	524,099	49.3	1.0	476,679
Commercial	96,725,642	403	565,845	53.2	1.1	514,647
Industrial	0		0	0.0	0.0	0
Total	186,315,242		1,089,944	102.5	2.0	991,326

Sources:

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)
- Emission factors for carbon dioxide from: California Climate Action Registry (CCAR). Power/Utility Protocol (PUP). Years 2004-2006.
- Residential per capita is based on the population; commercial per capita is based on the number of employees
- Per capita emission rates are from the year 2010 based on actual usage from PG&E. The electricity and natural gas usage for this year are calculated as the per capita rate multiplied by the projected population.

Community Greenhouse Gas Inventory

Offroad Equipment

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,082,000	968	0.0663	0.0093	882
Fresno	649,200	581	0	0	529
Percent Fresno/Fresno County	60.0%				

Other Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,082,000	1,085	0.291	0.08810	1,015
Fresno	649,200	651	0	0	609
Percent Fresno/Fresno County	60.0%				

Total Fresno 1,138

Notes:

Emissions for Fresno County are from OFFROAD2007 for the year assessed; emissions from Fresno are apportioned based on population.

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

Emissions (MMTCO ₂ e)	36.11
Population	40,643,643
Emissions (MTCO ₂ e per person)	0.89

Fresno

Population	649,200
Emissions (MTCO ₂ e per person) (estimated by using California per person emissions)	576,784

Sources/Notes:

California Emissions from: California Air Resources Board. 2010. California GHG Emissions - Forecast (2008-2020) Website: http://www.arb.ca.gov/cc/inventory/data/tables/2020_ghg_emissions_forecast_2010-10-28.pdf

Accessed August 19, 2013.

California Population: California Department of Finance (DOF). 2013. Total Population Projections for California and Counties: July 1, 2015 to 2060 in 5-year Increments. Website:

http://www.dof.ca.gov/research/demographic/reports/projections/P-1/documents/Projections_Press_Release_2010-2060.pdf. Accessed August 19, 2013.

Community Greenhouse Gas Inventory

Summary

Year: 2035

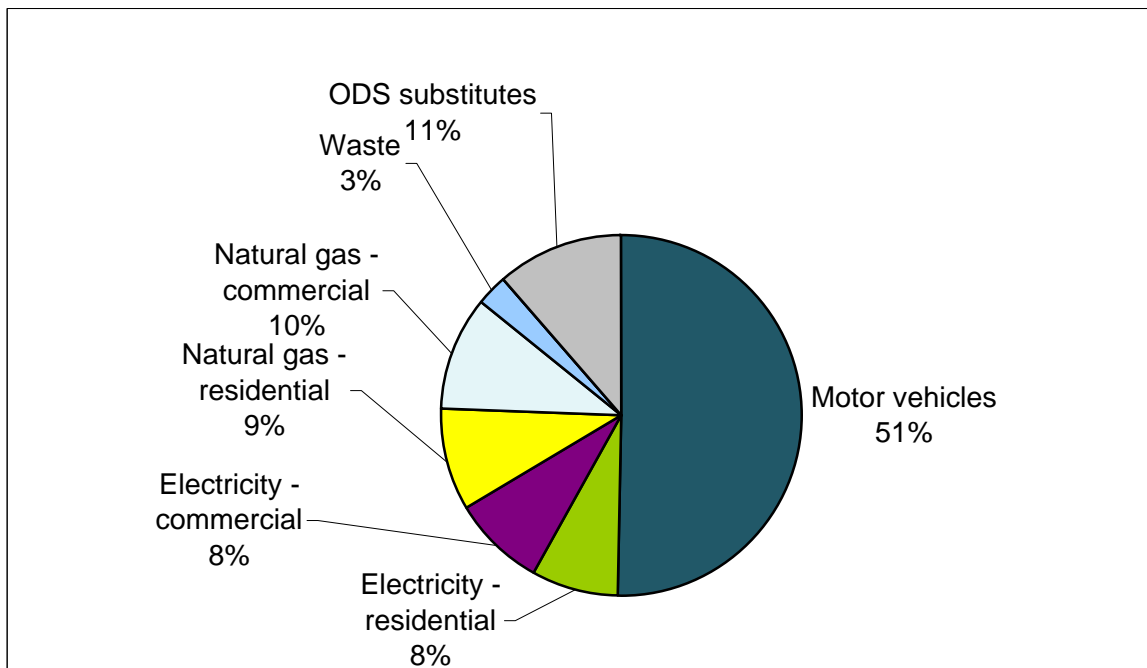
Prepared by FirstCarbon Solutions

	Data	Source
City Information		
Population	780,600	Fresno COG
Employment	294,822	
County Information		
Population	1,301,000	Fresno COG

-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050. Produced under contract by: The Planning Center|DC&E. March 2012.

-Employment: Took the 2010 population (545,000) and 2010 employment (183,825) and cross multiplied with the 2035 population (780,600) and the 2035 employment number (X).

Emissions (MTCO₂e/year)	Without Regulation	With Pavley I and LCFS
Motor vehicles	3,107,859	3,107,859
Electricity - residential	469,524	
Electricity - commercial	509,781	
Natural gas - residential	573,160	
Natural gas - commercial	632,169	
Waste	177,508	
Offroad equipment	1,314	
ODS substitutes	694,734	
<u>Total</u>	<u>6,166,049</u>	



Community Greenhouse Gas Inventory

Waste

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Emissions

Emissions (MTCO ₂ e)*	177,508	
Emissions (MTCO ₂ e/person)	0.2274	2010 waste emissions per person

Notes:

*Emissions were calculated by multiplying the 2010 per capita rate by the population for this year.

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **14,989,208** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 5,471,060,920 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,044	0	1,044	5
5 - 10 MPH	867	1,014	0	1,881	5
10 - 15 MPH	169,023	218,185	464,023	851,231	10
15 - 20 MPH	5,711	8,451	8,927	23,089	15
20 - 25 MPH	24,991	41,774	71,218	137,984	20
25 - 30 MPH	102,076	135,165	293,694	530,936	25
30 - 35 MPH	113,130	179,032	223,639	515,800	30
35 - 40 MPH	666,413	863,471	1,739,931	3,269,815	35
40 - 45 MPH	298,021	363,660	798,881	1,460,562	40
45 - 50 MPH	253,522	334,066	983,905	1,571,493	45
50 - 55 MPH	137,117	193,692	466,238	797,047	50
55 - 60 MPH	608,586	723,611	1,711,520	3,043,717	55
60 - 65 MPH	583,433	724,771	1,476,213	2,784,416	60
65 - 70 MPH	33	43	116	191	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,962,924	3,787,978	8,238,306	14,989,208	

Source:
 Fehr and Peers. 2013. 2035 VMT was found by multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 25 years of VMT growth between 2010 and 2035 and adding that to the 2010 VMT.
 Annual VMT Growth Rate: Was found by interpolating between 2010 and 2056 VMT: $[(2056 \text{ VMT} - 2010 \text{ VMT}) / 46 \text{ years} = .0254]$.

2010 VMT found by backcasting the

2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2925	851231	23089	137984	530936	515800	3269815	1460562	1571493	797047	3043717	2784416	191	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	40.99%	0.11%	0.5% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	5.72%	0.01%	44.8% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.28%	0.01%	41.5% LDA, MCY
LHD1	2.71%	1.95%	10.6% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.30%	0.46%	2.4% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.56%	0.00%	0.1% LDA, MCY
MDV	19.74%	0.01%	
MH	0.15%	0.03%	
OBUS	0.10%	0.14%	
SBUS	0.02%	0.09%	
T6	0.18%	1.83%	
T7	0.03%	8.38%	
UBUS	0.06%	0.13%	
Total			100.0%

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1118	835	645	511	424	365	326	302	291	290	301	324	362	388	0
LDT1		1277	953	736	584	484	417	372	345	332	332	344	370	413	443	0
LDT2		1541	1151	889	704	584	503	450	416	401	400	415	446	498	534	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		222	204	176	154	137	124	114	107	101	98	97	97	99	104	0
MDV		1916	1431	1105	875	726	625	559	517	498	497	516	555	620	664	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		363	363	363	363	363	363	363	363	363	363	363	363	363	363	0
LDT1		373	373	373	373	373	373	373	373	373	373	373	373	373	373	0
LDT2		371	371	371	371	371	371	371	371	371	371	371	371	371	371	0
LHD1		533	533	533	533	533	533	533	533	533	533	533	0	0	0	0
LHD2		535	535	535	535	535	535	535	535	535	535	535	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		369	369	369	369	369	369	369	369	369	369	369	369	369	369	0
MH		2381	2162	1775	1457	1307	1226	1160	1107	1068	1042	1030	1032	1047	0	0
OBUS		3085	2487	2025	1711	1595	1551	1530	1421	1443	1399	1360	1188	1365	0	0
SBUS		2650	2189	1798	1418	1323	1242	1175	1121	1081	1055	1043	1045	0	0	0
T6		2621	2165	1778	1403	1309	1228	1162	1109	1070	1044	1032	1034	1049	0	0
T7		4026	3326	2731	2156	2010	1887	1784	1703	1643	1603	1585	1587	1611	0	0
UBUS		2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1199	348930	9464	56561	217637	211433	1340336	598702	644174	326719	1247656	1141366	78	0	0
LDT1		167	48732	1322	7899	30395	29529	187192	83615	89966	45630	174248	159404	11	0	0
LDT2		476	138545	3758	22458	86414	83951	532189	237719	255773	129726	495390	453187	31	0	0
LHD1		79	23104	627	3745	14411	14000	88750	39643	42654	21634	82613	75575	5	0	0
LHD2		9	2561	69	415	1598	1552	9839	4395	4729	2398	9158	8378	1	0	0
MCY		16	4729	128	767	2950	2866	18166	8114	8731	4428	16910	15469	1	0	0
MDV		577	168045	4558	27240	104814	101826	645508	288336	310235	157348	600873	549683	38	0	0
MH		5	1316	36	213	821	797	5055	2258	2430	1232	4706	4305	0	0	0
OBUS		3	878	24	142	548	532	3374	1507	1622	822	3141	2873	0	0	0
SBUS		1	187	5	30	117	113	718	321	345	175	668	611	0	0	0
T6		5	1536	42	249	958	931	5902	2636	2836	1439	5494	5026	0	0	0
T7		1	218	6	35	136	132	838	374	403	204	780	713	0	0	0
UBUS		2	480	13	78	299	291	1843	823	886	449	1716	1570	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		3	945	26	153	590	573	3632	1622	1746	885	3381	3093	0	0	0
LDT1		0	74	2	12	46	45	285	127	137	69	265	243	0	0	0
LDT2		0	65	2	11	41	39	250	112	120	61	233	213	0	0	0
LHD1		57	16575	450	2687	10338	10044	63670	28440	30600	15520	59267	54218	4	0	0
LHD2		14	3956	107	641	2467	2397	15195	6787	7303	3704	14145	12940	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	76	2	12	48	46	293	131	141	71	273	249	0	0	0
MH		1	236	6	38	147	143	905	404	435	221	842	770	0	0	0
OBUS		4	1208	33	196	754	732	4641	2073	2230	1131	4320	3952	0	0	0
SBUS		3	762	21	123	475	462	2926	1307	1406	713	2724	2492	0	0	0
T6		54	15598	423	2528	9729	9452	59917	26764	28797	14605	55774	51023	4	0	0
T7		245	71364	1936	11568	44512	43243	274130	122449	131749	66822	255175	233436	16	0	0
UBUS		4	1109	30	180	692	672	4261	1903	2048	1039	3966	3628	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		538	116,967	2,451	11,600	37,034	30,966	175,497	72,575	75,160	38,080	150,772	148,306	11	0	0	859,419
LDT1		86	18,645	390	1,851	5,908	4,940	27,995	11,580	11,992	6,076	24,055	23,664	2	0	0	137,097
LDT2		295	64,009	1,341	6,349	20,270	16,949	96,055	39,724	41,139	20,843	82,525	81,178	6	0	0	470,391
LHD1		80	18,888	350	1,513	4,444	3,482	18,809	7,564	7,742	3,946	16,001	0	0	0	0	82,739

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	9	2,094	39	168	493	386	2,085	839	858	437	1,774	0	0	0	0	9,172
MCY	1	388	9	47	162	143	832	347	355	174	656	602	0	0	0	3,715
MDV	444	96,530	2,022	9,573	30,563	25,555	144,830	59,892	62,025	31,426	124,424	122,389	9	0	0	709,239
MH	5	1,076	20	86	253	198	1,071	431	441	225	911	935	0	0	0	5,648
OBUS	3	718	13	58	169	132	715	288	294	150	608	624	0	0	0	3,770
SBUS	1	153	3	12	36	28	152	61	63	32	129	133	0	0	0	802
T6	5	1,256	23	101	295	232	1,251	503	515	262	1,064	1,092	0	0	0	6,594
T7	1	178	3	14	42	33	178	71	73	37	151	155	0	0	0	936
UBUS	2	392	7	31	92	72	391	157	161	82	332	341	0	0	0	2,059
Total	1,469	321,295	6,673	31,403	99,762	83,117	469,860	194,032	200,818	101,772	403,403	379,419	29	0	0	2,293,051
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	0	138	4	22	86	83	529	236	254	129	493	451	0	0	0	2,425
LDT1	0	11	0	2	7	7	43	19	21	10	40	36	0	0	0	196
LDT2	0	10	0	2	6	6	37	17	18	9	35	32	0	0	0	171
LHD1	12	3,544	96	575	2,211	2,148	13,615	6,081	6,543	3,319	12,673	0	0	0	0	50,804
LHD2	3	849	23	138	530	515	3,263	1,457	1,568	795	3,037	0	0	0	0	12,176
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	11	0	2	7	7	43	19	21	11	40	37	0	0	0	199
MH	1	204	5	22	77	70	421	180	186	92	348	319	0	0	0	1,926
OBUS	5	1,206	27	135	483	456	2,851	1,183	1,293	636	2,359	1,885	0	0	0	12,512
SBUS	3	670	15	70	252	230	1,380	588	611	302	1,141	1,045	0	0	0	6,305
T6	56	13,562	302	1,424	5,112	4,662	27,950	11,916	12,366	6,121	23,108	21,173	1	0	0	127,698
T7	396	95,287	2,122	10,014	35,920	32,755	196,380	83,720	86,885	43,010	162,358	148,766	10	0	0	897,226
UBUS	4	1,170	32	190	730	709	4,495	2,008	2,160	1,096	4,184	3,828	0	0	0	20,600
Total	481	116,663	2,626	12,595	45,420	41,647	251,008	107,424	111,926	55,531	209,815	177,572	12	0	0	1,132,719

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	3,425,770	3,107,859	3,107,859

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **14,989,208** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 5,471,060,920 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,044	0	1,044	5
5 - 10 MPH	867	1,014	0	1,881	5
10 - 15 MPH	169,023	218,185	464,023	851,231	10
15 - 20 MPH	5,711	8,451	8,927	23,089	15
20 - 25 MPH	24,991	41,774	71,218	137,984	20
25 - 30 MPH	102,076	135,165	293,694	530,936	25
30 - 35 MPH	113,130	179,032	223,639	515,800	30
35 - 40 MPH	666,413	863,471	1,739,931	3,269,815	35
40 - 45 MPH	298,021	363,660	798,881	1,460,562	40
45 - 50 MPH	253,522	334,066	983,905	1,571,493	45
50 - 55 MPH	137,117	193,692	466,238	797,047	50
55 - 60 MPH	608,586	723,611	1,711,520	3,043,717	55
60 - 65 MPH	583,433	724,771	1,476,213	2,784,416	60
65 - 70 MPH	33	43	116	191	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,962,924	3,787,978	8,238,306	14,989,208	

Source:
 Fehr and Peers. 2013. 2035 VMT was found by multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 25 years of VMT growth between 2010 and 2035 and adding that to the 2010 VMT.
 Annual VMT Growth Rate: Was found by interpolating between 2010 and 2056 VMT: $[(2056 \text{ VMT} - 2010 \text{ VMT}) / 46 \text{ years} = .0254]$.

2010 VMT found by backcasting the

2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2925	851231	23089	137984	530936	515800	3269815	1460562	1571493	797047	3043717	2784416	191	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	40.99%	0.11%	GAS Heavy duty 0.5% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	5.72%	0.01%	Light trucks 44.8% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.28%	0.01%	Passenger 41.5% LDA, MCY
LHD1	2.71%	1.95%	DSL Heavy duty 10.6% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.30%	0.46%	Light trucks 2.4% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.56%	0.00%	Passenger 0.1% LDA, MCY
MDV	19.74%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.10%	0.14%	
SBUS	0.02%	0.09%	
T6	0.18%	1.83%	
T7	0.03%	8.38%	
UBUS	0.06%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1118	835	645	511	424	365	326	302	291	290	301	324	362	388	0
LDT1		1277	953	736	584	484	417	372	345	332	332	344	370	413	443	0
LDT2		1541	1151	889	704	584	503	450	416	401	400	415	446	498	534	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		222	204	176	154	137	124	114	107	101	98	97	97	99	104	0
MDV		1916	1431	1105	875	726	625	559	517	498	497	516	555	620	664	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		363	363	363	363	363	363	363	363	363	363	363	363	363	363	0
LDT1		373	373	373	373	373	373	373	373	373	373	373	373	373	373	0
LDT2		371	371	371	371	371	371	371	371	371	371	371	371	371	371	0
LHD1		533	533	533	533	533	533	533	533	533	533	533	0	0	0	0
LHD2		535	535	535	535	535	535	535	535	535	535	535	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		369	369	369	369	369	369	369	369	369	369	369	369	369	369	0
MH		2381	2162	1775	1457	1307	1226	1160	1107	1068	1042	1030	1032	1047	0	0
OBUS		3085	2487	2025	1711	1595	1551	1530	1421	1443	1399	1360	1188	1365	0	0
SBUS		2650	2189	1798	1418	1323	1242	1175	1121	1081	1055	1043	1045	0	0	0
T6		2621	2165	1778	1403	1309	1228	1162	1109	1070	1044	1032	1034	1049	0	0
T7		4026	3326	2731	2156	2010	1887	1784	1703	1643	1603	1585	1587	1611	0	0
UBUS		2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1199	348930	9464	56561	217637	211433	1340336	598702	644174	326719	1247656	1141366	78	0	0
LDT1		167	48732	1322	7899	30395	29529	187192	83615	89966	45630	174248	159404	11	0	0
LDT2		476	138545	3758	22458	86414	83951	532189	237719	255773	129726	495390	453187	31	0	0
LHD1		79	23104	627	3745	14411	14000	88750	39643	42654	21634	82613	75575	5	0	0
LHD2		9	2561	69	415	1598	1552	9839	4395	4729	2398	9158	8378	1	0	0
MCY		16	4729	128	767	2950	2866	18166	8114	8731	4428	16910	15469	1	0	0
MDV		577	168045	4558	27240	104814	101826	645508	288336	310235	157348	600873	549683	38	0	0
MH		5	1316	36	213	821	797	5055	2258	2430	1232	4706	4305	0	0	0
OBUS		3	878	24	142	548	532	3374	1507	1622	822	3141	2873	0	0	0
SBUS		1	187	5	30	117	113	718	321	345	175	668	611	0	0	0
T6		5	1536	42	249	958	931	5902	2636	2836	1439	5494	5026	0	0	0
T7		1	218	6	35	136	132	838	374	403	204	780	713	0	0	0
UBUS		2	480	13	78	299	291	1843	823	886	449	1716	1570	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		3	945	26	153	590	573	3632	1622	1746	885	3381	3093	0	0	0
LDT1		0	74	2	12	46	45	285	127	137	69	265	243	0	0	0
LDT2		0	65	2	11	41	39	250	112	120	61	233	213	0	0	0
LHD1		57	16575	450	2687	10338	10044	63670	28440	30600	15520	59267	54218	4	0	0
LHD2		14	3956	107	641	2467	2397	15195	6787	7303	3704	14145	12940	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	76	2	12	48	46	293	131	141	71	273	249	0	0	0
MH		1	236	6	38	147	143	905	404	435	221	842	770	0	0	0
OBUS		4	1208	33	196	754	732	4641	2073	2230	1131	4320	3952	0	0	0
SBUS		3	762	21	123	475	462	2926	1307	1406	713	2724	2492	0	0	0
T6		54	15598	423	2528	9729	9452	59917	26764	28797	14605	55774	51023	4	0	0
T7		245	71364	1936	11568	44512	43243	274130	122449	131749	66822	255175	233436	16	0	0
UBUS		4	1109	30	180	692	672	4261	1903	2048	1039	3966	3628	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		538	116,967	2,451	11,600	37,034	30,966	175,497	72,575	75,160	38,080	150,772	148,306	11	0	0	859,419
LDT1		86	18,645	390	1,851	5,908	4,940	27,995	11,580	11,992	6,076	24,055	23,664	2	0	0	137,097
LDT2		295	64,009	1,341	6,349	20,270	16,949	96,055	39,724	41,139	20,843	82,525	81,178	6	0	0	470,391
LHD1		80	18,888	350	1,513	4,444	3,482	18,809	7,564	7,742	3,946	16,001	0	0	0	0	82,739

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	9	2,094	39	168	493	386	2,085	839	858	437	1,774	0	0	0	0	9,172
MCY	1	388	9	47	162	143	832	347	355	174	656	602	0	0	0	3,715
MDV	444	96,530	2,022	9,573	30,563	25,555	144,830	59,892	62,025	31,426	124,424	122,389	9	0	0	709,239
MH	5	1,076	20	86	253	198	1,071	431	441	225	911	935	0	0	0	5,648
OBUS	3	718	13	58	169	132	715	288	294	150	608	624	0	0	0	3,770
SBUS	1	153	3	12	36	28	152	61	63	32	129	133	0	0	0	802
T6	5	1,256	23	101	295	232	1,251	503	515	262	1,064	1,092	0	0	0	6,594
T7	1	178	3	14	42	33	178	71	73	37	151	155	0	0	0	936
UBUS	2	392	7	31	92	72	391	157	161	82	332	341	0	0	0	2,059
Total	1,469	321,295	6,673	31,403	99,762	83,117	469,860	194,032	200,818	101,772	403,403	379,419	29	0	0	2,293,051
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	0	138	4	22	86	83	529	236	254	129	493	451	0	0	0	2,425
LDT1	0	11	0	2	7	7	43	19	21	10	40	36	0	0	0	196
LDT2	0	10	0	2	6	6	37	17	18	9	35	32	0	0	0	171
LHD1	12	3,544	96	575	2,211	2,148	13,615	6,081	6,543	3,319	12,673	0	0	0	0	50,804
LHD2	3	849	23	138	530	515	3,263	1,457	1,568	795	3,037	0	0	0	0	12,176
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	11	0	2	7	7	43	19	21	11	40	37	0	0	0	199
MH	1	204	5	22	77	70	421	180	186	92	348	319	0	0	0	1,926
OBUS	5	1,206	27	135	483	456	2,851	1,183	1,293	636	2,359	1,885	0	0	0	12,512
SBUS	3	670	15	70	252	230	1,380	588	611	302	1,141	1,045	0	0	0	6,305
T6	56	13,562	302	1,424	5,112	4,662	27,950	11,916	12,366	6,121	23,108	21,173	1	0	0	127,698
T7	396	95,287	2,122	10,014	35,920	32,755	196,380	83,720	86,885	43,010	162,358	148,766	10	0	0	897,226
UBUS	4	1,170	32	190	730	709	4,495	2,008	2,160	1,096	4,184	3,828	0	0	0	20,600
Total	481	116,663	2,626	12,595	45,420	41,647	251,008	107,424	111,926	55,531	209,815	177,572	12	0	0	1,132,719

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	3,425,770	3,107,859	3,107,859

EMFAC 2011
 2005 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter: region -
 County: Fresno, year - 2005, season - annual average, vehicle
 category - EMFAC2007, model year - aggregated, speed - all
 speeds, fuel - all) Website: <http://www.arb.ca.gov/emfac/>
 2005 Emission Rates will be used for BAU calculations.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	LDA	GAS	5	574.3459975	1117.902588	1117.90259	0.003%
Fresno	2005	LDA	DSL	5	1.55629378	362.9037298	362.90373	0.000%
Fresno	2005	LDA	GAS	10	1560.70567	834.9088117	834.908812	0.008%
Fresno	2005	LDA	DSL	10	4.229012934	362.9037176	362.903718	0.000%
Fresno	2005	LDA	GAS	15	1481.313242	644.9016731	644.901673	0.007%
Fresno	2005	LDA	DSL	15	4.013884191	362.9037424	362.903742	0.000%
Fresno	2005	LDA	GAS	20	384673.2535	510.8041631	510.804163	1.912%
Fresno	2005	LDA	DSL	20	1042.341227	362.903737	362.903737	0.005%
Fresno	2005	LDA	GAS	25	46631.55871	423.823398	423.823398	0.232%
Fresno	2005	LDA	DSL	25	126.3565868	362.903733	362.903733	0.001%
Fresno	2005	LDA	GAS	30	142960.6643	364.7820036	364.782004	0.711%
Fresno	2005	LDA	DSL	30	387.3776096	362.9037333	362.903733	0.002%
Fresno	2005	LDA	GAS	35	556848.446	326.1153018	326.115302	2.768%
Fresno	2005	LDA	DSL	35	1508.880862	362.9037744	362.903774	0.008%
Fresno	2005	LDA	GAS	40	1045053.417	301.9173486	301.917349	5.196%
Fresno	2005	LDA	DSL	40	2831.760101	362.9037532	362.903753	0.014%
Fresno	2005	LDA	GAS	45	898804.646	290.6000061	290.600006	4.469%
Fresno	2005	LDA	DSL	45	2435.472726	362.9037268	362.903727	0.012%
Fresno	2005	LDA	GAS	50	1236247.625	290.295843	290.295843	6.146%
Fresno	2005	LDA	DSL	50	3349.835262	362.9037543	362.903754	0.017%
Fresno	2005	LDA	GAS	55	881689.2606	300.9810314	300.981031	4.383%
Fresno	2005	LDA	DSL	55	2389.095509	362.90373	362.90373	0.012%
Fresno	2005	LDA	GAS	60	1065707.872	323.6299465	323.629947	5.298%
Fresno	2005	LDA	DSL	60	2887.727003	362.9037118	362.903712	0.014%
Fresno	2005	LDA	GAS	65	1052205.277	361.6105735	361.610573	5.231%
Fresno	2005	LDA	DSL	65	2851.139136	362.903729	362.903729	0.014%
Fresno	2005	LDA	GAS	70	930481.937	387.59416	387.59416	4.626%
Fresno	2005	LDA	DSL	70	2521.30786	362.9037511	362.903751	0.013%
Fresno	2005	LDT1	GAS	5	80.2134059	1277.383889	1277.38389	0.000%
Fresno	2005	LDT1	DSL	5	0.122139063	373.2062411	373.206241	0.000%
Fresno	2005	LDT1	GAS	10	217.9688072	952.9532874	952.953287	0.001%
Fresno	2005	LDT1	DSL	10	0.331895978	373.2062264	373.206226	0.000%
Fresno	2005	LDT1	GAS	15	206.8808052	735.6841431	735.684143	0.001%
Fresno	2005	LDT1	DSL	15	0.315012523	373.2062425	373.206242	0.000%
Fresno	2005	LDT1	GAS	20	53723.62363	583.5347772	583.534777	0.267%
Fresno	2005	LDT1	DSL	20	81.803698	373.206226	373.206226	0.000%
Fresno	2005	LDT1	GAS	25	6512.582938	484.1298404	484.12984	0.032%
Fresno	2005	LDT1	DSL	25	9.916557	373.2062055	373.206206	0.000%
Fresno	2005	LDT1	GAS	30	19965.94701	416.6904394	416.690439	0.099%
Fresno	2005	LDT1	DSL	30	30.4016764	373.2062064	373.206206	0.000%
Fresno	2005	LDT1	GAS	35	77769.69216	372.4778067	372.477807	0.387%
Fresno	2005	LDT1	DSL	35	118.418068	373.2062534	373.206253	0.001%
Fresno	2005	LDT1	GAS	40	145952.6125	344.9252398	344.92524	0.726%
Fresno	2005	LDT1	DSL	40	222.238591	373.2062401	373.20624	0.001%
Fresno	2005	LDT1	GAS	45	125527.4358	331.9868346	331.986835	0.624%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	LDT1	DSL	45	191.137656	373.2062577	373.206258	0.001%
Fresno	2005	LDT1	GAS	50	172654.8816	331.6326825	331.632682	0.858%
Fresno	2005	LDT1	DSL	50	262.897513	373.2062113	373.206211	0.001%
Fresno	2005	LDT1	GAS	55	123137.0906	343.8328444	343.832844	0.612%
Fresno	2005	LDT1	DSL	55	187.497965	373.2061963	373.206196	0.001%
Fresno	2005	LDT1	GAS	60	148837.2054	369.7469417	369.746942	0.740%
Fresno	2005	LDT1	DSL	60	226.630859	373.206311	373.206311	0.001%
Fresno	2005	LDT1	GAS	65	146951.4277	413.1036658	413.103666	0.731%
Fresno	2005	LDT1	DSL	65	223.759469	373.2062322	373.206232	0.001%
Fresno	2005	LDT1	GAS	70	129951.4999	442.7709544	442.770954	0.646%
Fresno	2005	LDT1	DSL	70	197.874089	373.2062236	373.206224	0.001%
Fresno	2005	LDT2	GAS	5	228.0478692	1541.14964	1541.14964	0.001%
Fresno	2005	LDT2	DSL	5	0.107040842	371.0954996	371.0955	0.000%
Fresno	2005	LDT2	GAS	10	619.688516	1150.709694	1150.70969	0.003%
Fresno	2005	LDT2	DSL	10	0.290868673	371.095504	371.095504	0.000%
Fresno	2005	LDT2	GAS	15	588.1651566	888.7202414	888.720241	0.003%
Fresno	2005	LDT2	DSL	15	0.276072268	371.0954901	371.09549	0.000%
Fresno	2005	LDT2	GAS	20	152737.0474	704.1586177	704.158618	0.759%
Fresno	2005	LDT2	DSL	20	71.691539	371.0954812	371.095481	0.000%
Fresno	2005	LDT2	GAS	25	18515.36584	584.2418904	584.24189	0.092%
Fresno	2005	LDT2	DSL	25	8.6907219	371.095481	371.095481	0.000%
Fresno	2005	LDT2	GAS	30	56763.47295	502.8540511	502.854051	0.282%
Fresno	2005	LDT2	DSL	30	26.6435743	371.0954791	371.095479	0.000%
Fresno	2005	LDT2	GAS	35	221100.3455	449.539312	449.539312	1.099%
Fresno	2005	LDT2	DSL	35	103.779821	371.0955143	371.095514	0.001%
Fresno	2005	LDT2	GAS	40	414945.4046	416.2074653	416.207465	2.063%
Fresno	2005	LDT2	DSL	40	194.766579	371.0954985	371.095498	0.001%
Fresno	2005	LDT2	GAS	45	356876.2901	400.603499	400.603499	1.774%
Fresno	2005	LDT2	DSL	45	167.510172	371.0955097	371.09551	0.001%
Fresno	2005	LDT2	GAS	50	490860.2714	400.1823445	400.182345	2.440%
Fresno	2005	LDT2	DSL	50	230.399436	371.09548	371.09548	0.001%
Fresno	2005	LDT2	GAS	55	350080.5216	414.9103501	414.91035	1.740%
Fresno	2005	LDT2	DSL	55	164.320381	371.0955152	371.095515	0.001%
Fresno	2005	LDT2	GAS	60	423146.3014	446.1440566	446.144057	2.104%
Fresno	2005	LDT2	DSL	60	198.615926	371.0954932	371.095493	0.001%
Fresno	2005	LDT2	GAS	65	417785.0125	498.4924137	498.492414	2.077%
Fresno	2005	LDT2	DSL	65	196.099447	371.0954901	371.09549	0.001%
Fresno	2005	LDT2	GAS	70	369453.9847	534.3069769	534.306977	1.837%
Fresno	2005	LDT2	DSL	70	173.41387	371.0955028	371.095503	0.001%
Fresno	2005	LHD1	GAS	5	15493.27829	2513.497349	2513.49735	0.077%
Fresno	2005	LHD1	DSL	5	6887.103617	532.5794	532.5794	0.034%
Fresno	2005	LHD1	GAS	10	40399.97733	2036.128182	2036.12818	0.201%
Fresno	2005	LHD1	DSL	10	22902.76288	532.5792393	532.579239	0.114%
Fresno	2005	LHD1	GAS	15	91996.19282	1392.429536	1392.42954	0.457%
Fresno	2005	LHD1	DSL	15	49600.82188	532.5792921	532.579292	0.247%
Fresno	2005	LHD1	GAS	20	106300.888	1006.068544	1006.06854	0.528%
Fresno	2005	LHD1	DSL	20	54378.52199	532.5792617	532.579262	0.270%
Fresno	2005	LHD1	GAS	25	81884.45437	768.0121288	768.012129	0.407%
Fresno	2005	LHD1	DSL	25	58199.51987	532.5793513	532.579351	0.289%
Fresno	2005	LHD1	GAS	30	72412.73099	619.4335923	619.433592	0.360%
Fresno	2005	LHD1	DSL	30	49127.77262	532.5792941	532.579294	0.244%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	LHD1	GAS	35	27058.00658	527.8465902	527.84659	0.135%
Fresno	2005	LHD1	DSL	35	25926.63204	532.579317	532.579317	0.129%
Fresno	2005	LHD1	GAS	40	7986.90704	475.2331456	475.233146	0.040%
Fresno	2005	LHD1	DSL	40	14232.8744	532.5792642	532.579264	0.071%
Fresno	2005	LHD1	GAS	45	9832.585266	452.0558438	452.055844	0.049%
Fresno	2005	LHD1	DSL	45	15361.95268	532.5792928	532.579293	0.076%
Fresno	2005	LHD1	GAS	50	72602.43931	454.3217938	454.321794	0.361%
Fresno	2005	LHD1	DSL	50	59317.36357	532.5793236	532.579324	0.295%
Fresno	2005	LHD1	GAS	55	19969.09783	482.4155587	482.415559	0.099%
Fresno	2005	LHD1	DSL	55	35721.45554	532.5792563	532.579256	0.178%
Fresno	2005	LHD2	GAS	5	1717.546588	2513.497194	2513.49719	0.009%
Fresno	2005	LHD2	DSL	5	1643.654028	534.8240705	534.824071	0.008%
Fresno	2005	LHD2	GAS	10	4478.641561	2036.128258	2036.12826	0.022%
Fresno	2005	LHD2	DSL	10	5465.899708	534.8239928	534.823993	0.027%
Fresno	2005	LHD2	GAS	15	10198.47067	1392.429599	1392.4296	0.051%
Fresno	2005	LHD2	DSL	15	11837.57275	534.8239985	534.823999	0.059%
Fresno	2005	LHD2	GAS	20	11784.25424	1006.068517	1006.06852	0.059%
Fresno	2005	LHD2	DSL	20	12977.80233	534.8240078	534.824008	0.065%
Fresno	2005	LHD2	GAS	25	9077.508294	768.0121044	768.012104	0.045%
Fresno	2005	LHD2	DSL	25	13889.71073	534.8240484	534.824048	0.069%
Fresno	2005	LHD2	GAS	30	8027.49616	619.4336218	619.433622	0.040%
Fresno	2005	LHD2	DSL	30	11724.67582	534.824037	534.824037	0.058%
Fresno	2005	LHD2	GAS	35	2999.584099	527.846466	527.846466	0.015%
Fresno	2005	LHD2	DSL	35	6187.566882	534.8240546	534.824055	0.031%
Fresno	2005	LHD2	GAS	40	885.4087913	475.2331522	475.233152	0.004%
Fresno	2005	LHD2	DSL	40	3396.771437	534.8241463	534.824146	0.017%
Fresno	2005	LHD2	GAS	45	1090.016138	452.0558109	452.055811	0.005%
Fresno	2005	LHD2	DSL	45	3666.233792	534.824068	534.824068	0.018%
Fresno	2005	LHD2	GAS	50	8048.527309	454.3218106	454.321811	0.040%
Fresno	2005	LHD2	DSL	50	14156.48996	534.8240631	534.824063	0.070%
Fresno	2005	LHD2	GAS	55	2213.724954	482.415483	482.415483	0.011%
Fresno	2005	LHD2	DSL	55	8525.166441	534.8240334	534.824033	0.042%
Fresno	2005	MCY	GAS	5	7.7843384	221.6010944	221.601094	0.000%
Fresno	2005	MCY	GAS	10	21.1528613	204.3809145	204.380914	0.000%
Fresno	2005	MCY	GAS	15	20.07682252	176.0040917	176.004092	0.000%
Fresno	2005	MCY	GAS	20	5213.628487	154.0664735	154.066474	0.026%
Fresno	2005	MCY	GAS	25	632.0158685	137.0847399	137.08474	0.003%
Fresno	2005	MCY	GAS	30	1937.602297	123.9888015	123.988801	0.010%
Fresno	2005	MCY	GAS	35	7547.186875	114.0069527	114.006953	0.038%
Fresno	2005	MCY	GAS	40	14164.02356	106.5882594	106.588259	0.070%
Fresno	2005	MCY	GAS	45	12181.85384	101.351138	101.351138	0.061%
Fresno	2005	MCY	GAS	50	16755.35397	98.0507808	98.0507808	0.083%
Fresno	2005	MCY	GAS	55	11949.88349	96.5621063	96.5621063	0.059%
Fresno	2005	MCY	GAS	60	14443.95889	96.87654461	96.8765446	0.072%
Fresno	2005	MCY	GAS	65	14260.95394	99.1149102	99.1149102	0.071%
Fresno	2005	MCY	GAS	70	12611.18911	103.5614952	103.561495	0.063%
Fresno	2005	MDV	GAS	5	276.6057878	1915.561564	1915.56156	0.001%
Fresno	2005	MDV	DSL	5	0.125445122	369.0636663	369.063666	0.000%
Fresno	2005	MDV	GAS	10	751.6379153	1430.71487	1430.71487	0.004%
Fresno	2005	MDV	DSL	10	0.34087976	369.0636324	369.063632	0.000%
Fresno	2005	MDV	GAS	15	713.402331	1105.142376	1105.14238	0.004%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	MDV	DSL	15	0.323539357	369.0636164	369.063616	0.000%
Fresno	2005	MDV	GAS	20	185259.1327	875.2888262	875.288826	0.921%
Fresno	2005	MDV	DSL	20	84.01796496	369.0636582	369.063658	0.000%
Fresno	2005	MDV	GAS	25	22457.81699	726.2455563	726.245556	0.112%
Fresno	2005	MDV	DSL	25	10.18497853	369.0636516	369.063652	0.000%
Fresno	2005	MDV	GAS	30	68850.04116	625.0744431	625.074443	0.342%
Fresno	2005	MDV	DSL	30	31.22459012	369.0636522	369.063652	0.000%
Fresno	2005	MDV	GAS	35	268178.9233	558.8198391	558.819839	1.333%
Fresno	2005	MDV	DSL	35	121.6234022	369.0637076	369.063708	0.001%
Fresno	2005	MDV	GAS	40	503299.0839	517.3492783	517.349278	2.502%
Fresno	2005	MDV	DSL	40	228.2541587	369.0636653	369.063665	0.001%
Fresno	2005	MDV	GAS	45	432865.4758	497.9571493	497.957149	2.152%
Fresno	2005	MDV	DSL	45	196.3113735	369.0636861	369.063686	0.001%
Fresno	2005	MDV	GAS	50	595378.4851	497.4363565	497.436356	2.960%
Fresno	2005	MDV	DSL	50	270.0136082	369.0636733	369.063673	0.001%
Fresno	2005	MDV	GAS	55	424622.6866	515.7464096	515.74641	2.111%
Fresno	2005	MDV	DSL	55	192.5731227	369.0637145	369.063714	0.001%
Fresno	2005	MDV	GAS	60	513246.2809	554.5537379	554.553738	2.552%
Fresno	2005	MDV	DSL	60	232.7653436	369.0636774	369.063677	0.001%
Fresno	2005	MDV	GAS	65	506743.4137	619.6376375	619.637637	2.519%
Fresno	2005	MDV	DSL	65	229.8161802	369.0636924	369.063692	0.001%
Fresno	2005	MDV	GAS	70	448121.3124	664.1628397	664.16284	2.228%
Fresno	2005	MDV	DSL	70	203.2301423	369.0636551	369.063655	0.001%
Fresno	2005	MH	GAS	5	268.9167968	2513.497406	2513.49741	0.001%
Fresno	2005	MH	DSL	5	44.76225056	2381.129731	2381.12973	0.000%
Fresno	2005	MH	GAS	10	1351.847182	2036.128315	2036.12831	0.007%
Fresno	2005	MH	DSL	10	222.8096365	2162.072949	2162.07295	0.001%
Fresno	2005	MH	GAS	15	1707.614697	1392.429658	1392.42966	0.008%
Fresno	2005	MH	DSL	15	300.715632	1775.243505	1775.24351	0.001%
Fresno	2005	MH	GAS	20	1771.215993	1006.068537	1006.06854	0.009%
Fresno	2005	MH	DSL	20	318.91989	1456.791888	1456.79189	0.002%
Fresno	2005	MH	GAS	25	1973.543913	768.012138	768.012138	0.010%
Fresno	2005	MH	DSL	25	332.1424004	1306.661906	1306.66191	0.002%
Fresno	2005	MH	GAS	30	2231.372516	619.4336513	619.433651	0.011%
Fresno	2005	MH	DSL	30	399.3743491	1226.495736	1226.49574	0.002%
Fresno	2005	MH	GAS	35	2773.257546	527.8465727	527.846573	0.014%
Fresno	2005	MH	DSL	35	470.9149121	1159.967885	1159.96789	0.002%
Fresno	2005	MH	GAS	40	3452.419773	475.233224	475.233224	0.017%
Fresno	2005	MH	DSL	40	584.5676013	1107.078048	1107.07805	0.003%
Fresno	2005	MH	GAS	45	3148.370866	452.0558634	452.055863	0.016%
Fresno	2005	MH	DSL	45	478.6833316	1067.826603	1067.8266	0.002%
Fresno	2005	MH	GAS	50	3064.012004	454.3218205	454.321821	0.015%
Fresno	2005	MH	DSL	50	535.7245191	1042.213217	1042.21322	0.003%
Fresno	2005	MH	GAS	55	4007.448442	482.4155989	482.415599	0.020%
Fresno	2005	MH	DSL	55	785.0557197	1030.238195	1030.2382	0.004%
Fresno	2005	MH	GAS	60	4624.41305	541.2091675	541.209168	0.023%
Fresno	2005	MH	DSL	60	943.3760148	1031.901337	1031.90134	0.005%
Fresno	2005	MH	GAS	65	722.62303	641.4979244	641.497924	0.004%
Fresno	2005	MH	DSL	65	148.4605629	1047.202697	1047.2027	0.001%
Fresno	2005	OBUS	GAS	5	179.4898447	2513.497341	2513.49734	0.001%
Fresno	2005	OBUS	DSL	5	165.7644542	3084.635701	3084.6357	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	OBUS	GAS	10	902.2969282	2036.128585	2036.12858	0.004%
Fresno	2005	OBUS	DSL	10	764.4488042	2486.733654	2486.73365	0.004%
Fresno	2005	OBUS	GAS	15	1139.755796	1392.429568	1392.42957	0.006%
Fresno	2005	OBUS	DSL	15	1006.387031	2024.544507	2024.54451	0.005%
Fresno	2005	OBUS	GAS	20	1182.206665	1006.068712	1006.06871	0.006%
Fresno	2005	OBUS	DSL	20	1343.731614	1711.279078	1711.27908	0.007%
Fresno	2005	OBUS	GAS	25	1317.251509	768.0121314	768.012131	0.007%
Fresno	2005	OBUS	DSL	25	1394.142051	1595.098427	1595.09843	0.007%
Fresno	2005	OBUS	GAS	30	1489.340651	619.4336132	619.433613	0.007%
Fresno	2005	OBUS	DSL	30	1945.026661	1550.74938	1550.74938	0.010%
Fresno	2005	OBUS	GAS	35	1851.024293	527.8466067	527.846607	0.009%
Fresno	2005	OBUS	DSL	35	2872.193717	1530.258857	1530.25886	0.014%
Fresno	2005	OBUS	GAS	40	2304.334444	475.2331835	475.233184	0.011%
Fresno	2005	OBUS	DSL	40	3065.466762	1421.24912	1421.24912	0.015%
Fresno	2005	OBUS	GAS	45	2101.3955	452.0558515	452.055852	0.010%
Fresno	2005	OBUS	DSL	45	3431.453572	1443.331847	1443.33185	0.017%
Fresno	2005	OBUS	GAS	50	2045.089835	454.321748	454.321748	0.010%
Fresno	2005	OBUS	DSL	50	3664.621488	1399.471266	1399.47127	0.018%
Fresno	2005	OBUS	GAS	55	2674.791345	482.4155895	482.415589	0.013%
Fresno	2005	OBUS	DSL	55	4802.489099	1359.79194	1359.79194	0.024%
Fresno	2005	OBUS	GAS	60	3086.587339	541.2091188	541.209119	0.015%
Fresno	2005	OBUS	DSL	60	3246.411046	1188.092655	1188.09266	0.016%
Fresno	2005	OBUS	GAS	65	482.3182765	641.497927	641.497927	0.002%
Fresno	2005	OBUS	DSL	65	845.5605614	1365.372637	1365.37264	0.004%
Fresno	2005	SBUS	GAS	5	43.72972372	2513.49706	2513.49706	0.000%
Fresno	2005	SBUS	DSL	5	178.2500641	2650.118082	2650.11808	0.001%
Fresno	2005	SBUS	GAS	10	153.2704446	2036.128028	2036.12803	0.001%
Fresno	2005	SBUS	DSL	10	624.7573386	2189.204641	2189.20464	0.003%
Fresno	2005	SBUS	GAS	15	306.5408773	1392.429627	1392.42963	0.002%
Fresno	2005	SBUS	DSL	15	1249.514677	1797.52678	1797.52678	0.006%
Fresno	2005	SBUS	GAS	20	416.0794089	1006.068501	1006.0685	0.002%
Fresno	2005	SBUS	DSL	20	1696.012951	1418.069831	1418.06983	0.008%
Fresno	2005	SBUS	GAS	25	656.8093052	768.0121132	768.012113	0.003%
Fresno	2005	SBUS	DSL	25	2677.270418	1323.090846	1323.09085	0.013%
Fresno	2005	SBUS	GAS	30	787.9984747	619.4336026	619.433603	0.004%
Fresno	2005	SBUS	DSL	30	3212.02061	1241.920828	1241.92083	0.016%
Fresno	2005	SBUS	GAS	35	808.7813293	527.8465156	527.846516	0.004%
Fresno	2005	SBUS	DSL	35	3296.735071	1174.559776	1174.55978	0.016%
Fresno	2005	SBUS	GAS	40	545.9701739	475.2331343	475.233134	0.003%
Fresno	2005	SBUS	DSL	40	2225.470458	1121.007691	1121.00769	0.011%
Fresno	2005	SBUS	GAS	45	261.9433353	452.0558193	452.055819	0.001%
Fresno	2005	SBUS	DSL	45	1067.727156	1081.264572	1081.26457	0.005%
Fresno	2005	SBUS	GAS	50	131.1891745	454.3217491	454.321749	0.001%
Fresno	2005	SBUS	DSL	50	534.7501924	1055.33042	1055.33042	0.003%
Fresno	2005	SBUS	GAS	55	195.2667083	482.415443	482.415443	0.001%
Fresno	2005	SBUS	DSL	55	795.9414888	1043.205234	1043.20523	0.004%
Fresno	2005	SBUS	GAS	60	108.6750878	541.2091468	541.209147	0.001%
Fresno	2005	SBUS	DSL	60	442.9788178	1044.889015	1044.88902	0.002%
Fresno	2005	T6	GAS	5	313.9394	2513.49736	2513.49736	0.002%
Fresno	2005	T6	DSL	5	2964.362997	2621.415259	2621.41526	0.015%
Fresno	2005	T6	GAS	10	1578.176144	2036.128442	2036.12844	0.008%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	T6	DSL	10	14755.48228	2165.493866	2165.49387	0.073%
Fresno	2005	T6	GAS	15	1993.506875	1392.42983	1392.42983	0.010%
Fresno	2005	T6	DSL	15	19914.77964	1778.058179	1778.05818	0.099%
Fresno	2005	T6	GAS	20	2067.756551	1006.068559	1006.06856	0.010%
Fresno	2005	T6	DSL	20	21120.34755	1402.711041	1402.71104	0.105%
Fresno	2005	T6	GAS	25	2303.958615	768.012209	768.012209	0.011%
Fresno	2005	T6	DSL	25	21996.00436	1308.760752	1308.76075	0.109%
Fresno	2005	T6	GAS	30	2604.953592	619.4336025	619.433602	0.013%
Fresno	2005	T6	DSL	30	26448.41322	1228.469867	1228.46987	0.131%
Fresno	2005	T6	GAS	35	3237.56208	527.8465737	527.846574	0.016%
Fresno	2005	T6	DSL	35	31186.16258	1161.838388	1161.83839	0.155%
Fresno	2005	T6	GAS	40	4030.43084	475.2332482	475.233248	0.020%
Fresno	2005	T6	DSL	40	38712.76602	1108.866313	1108.86631	0.192%
Fresno	2005	T6	GAS	45	3675.47757	452.0558736	452.055874	0.018%
Fresno	2005	T6	DSL	45	31700.62212	1069.553643	1069.55364	0.158%
Fresno	2005	T6	GAS	50	3576.99512	454.3217943	454.321794	0.018%
Fresno	2005	T6	DSL	50	35478.15139	1043.900377	1043.90038	0.176%
Fresno	2005	T6	GAS	55	4678.38379	482.4155587	482.415559	0.023%
Fresno	2005	T6	DSL	55	51990.01588	1031.906517	1031.90652	0.258%
Fresno	2005	T6	GAS	60	5398.64157	541.2092298	541.20923	0.027%
Fresno	2005	T6	DSL	60	62474.71663	1033.572061	1033.57206	0.311%
Fresno	2005	T6	GAS	65	843.606066	641.4979114	641.497911	0.004%
Fresno	2005	T6	DSL	65	9831.744097	1048.89701	1048.89701	0.049%
Fresno	2005	T7	GAS	5	18.76846249	2513.497347	2513.49735	0.000%
Fresno	2005	T7	DSL	5	6085.370392	4025.733112	4025.73311	0.030%
Fresno	2005	T7	GAS	10	91.73117308	2036.127866	2036.12787	0.000%
Fresno	2005	T7	DSL	10	23246.39627	3325.570158	3325.57016	0.116%
Fresno	2005	T7	GAS	15	100.034277	1392.429565	1392.42957	0.000%
Fresno	2005	T7	DSL	15	28430.53281	2730.581376	2730.58138	0.141%
Fresno	2005	T7	GAS	20	170.9568883	1006.068425	1006.06843	0.001%
Fresno	2005	T7	DSL	20	70220.90117	2156.026899	2156.0269	0.349%
Fresno	2005	T7	GAS	25	223.1096354	768.012027	768.012027	0.001%
Fresno	2005	T7	DSL	25	64214.81804	2009.876716	2009.87672	0.319%
Fresno	2005	T7	GAS	30	407.4400111	619.433607	619.433607	0.002%
Fresno	2005	T7	DSL	30	108412.4915	1886.573218	1886.57322	0.539%
Fresno	2005	T7	GAS	35	724.6866805	527.8465816	527.846582	0.004%
Fresno	2005	T7	DSL	35	195036.7831	1784.246602	1784.2466	0.970%
Fresno	2005	T7	GAS	40	631.7265342	475.2333056	475.233306	0.003%
Fresno	2005	T7	DSL	40	184058.0666	1702.896867	1702.89687	0.915%
Fresno	2005	T7	GAS	45	668.4343308	452.0557651	452.055765	0.003%
Fresno	2005	T7	DSL	45	257693.2211	1642.524014	1642.52401	1.281%
Fresno	2005	T7	GAS	50	699.3715848	454.3217173	454.321717	0.003%
Fresno	2005	T7	DSL	50	267994.6167	1603.128043	1603.12804	1.332%
Fresno	2005	T7	GAS	55	1026.625606	482.4155395	482.415539	0.005%
Fresno	2005	T7	DSL	55	326803.0314	1584.708954	1584.70895	1.625%
Fresno	2005	T7	GAS	60	253.3729539	541.2091887	541.209189	0.001%
Fresno	2005	T7	DSL	60	99555.62045	1587.266747	1587.26675	0.495%
Fresno	2005	T7	GAS	65	135.80266	641.4978614	641.497861	0.001%
Fresno	2005	T7	DSL	65	54528.61248	1610.801421	1610.80142	0.271%
Fresno	2005	UBUS	GAS	5	112.3655482	2513.497178	2513.49718	0.001%
Fresno	2005	UBUS	DSL	5	259.736822	2627.453122	2627.45312	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	UBUS	GAS	10	403.3140682	2036.128273	2036.12827	0.002%
Fresno	2005	UBUS	DSL	10	932.274273	2627.453223	2627.45322	0.005%
Fresno	2005	UBUS	GAS	15	806.6280844	1392.429514	1392.42951	0.004%
Fresno	2005	UBUS	DSL	15	1864.54857	2627.453199	2627.4532	0.009%
Fresno	2005	UBUS	GAS	20	1064.467933	1006.06853	1006.06853	0.005%
Fresno	2005	UBUS	DSL	20	2460.55387	2627.453313	2627.45331	0.012%
Fresno	2005	UBUS	GAS	25	1603.164937	768.0121541	768.012154	0.008%
Fresno	2005	UBUS	DSL	25	3705.77074	2627.453153	2627.45315	0.018%
Fresno	2005	UBUS	GAS	30	2006.478844	619.4336943	619.433694	0.010%
Fresno	2005	UBUS	DSL	30	4638.04437	2627.453188	2627.45319	0.023%
Fresno	2005	UBUS	GAS	35	1966.340307	527.8465849	527.846585	0.010%
Fresno	2005	UBUS	DSL	35	4545.26272	2627.453585	2627.45358	0.023%
Fresno	2005	UBUS	GAS	40	1417.551931	475.2332242	475.233224	0.007%
Fresno	2005	UBUS	DSL	40	3276.71961	2627.453246	2627.45325	0.016%
Fresno	2005	UBUS	GAS	45	617.9537663	452.0558589	452.055859	0.003%
Fresno	2005	UBUS	DSL	45	1428.421313	2627.453287	2627.45329	0.007%
Fresno	2005	UBUS	GAS	50	313.9658901	454.3218054	454.321805	0.002%
Fresno	2005	UBUS	DSL	50	725.74291	2627.453219	2627.45322	0.004%
Fresno	2005	UBUS	GAS	55	389.2542268	482.4155339	482.415534	0.002%
Fresno	2005	UBUS	DSL	55	899.774456	2627.453379	2627.45338	0.004%
Fresno	2005	UBUS	GAS	60	637.1160815	541.2091431	541.209143	0.003%
Fresno	2005	UBUS	DSL	60	1472.715687	2627.453055	2627.45305	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide	0.504	Used average of 2004-2006 historical emission factors.
Methane	0.000031	
Nitrous oxide	0.000011	

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	2,037,366,000	2,610	513,416	31.6	11.2	469,524
Commercial	2,212,049,466	7,503	557,436	34.3	12.2	509,781
Industrial	0		0	0.0	0.0	0
Total	4,249,415,466		1,070,853	65.9	23.4	979,305

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	107,722,800	138	630,178	59.2	1.2	573,160
Commercial	118,813,266	403	695,058	65.3	1.3	632,169
Industrial	0		0	0.0	0.0	0
Total	226,536,066		1,325,236	124.6	2.5	1,205,329

Notes and Sources:

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Emission factors for carbon dioxide from: California Climate Action Registry (CCAR). Power/Utility Protocol (PUP). Years 2004-2006.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

- Per capita emission rates are from the year 2010 based on actual usage from PG&E. The electricity and natural gas usage for this year are calculated as the per capita rate multiplied by the projected population.

Community Greenhouse Gas Inventory

Offroad Equipment

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,301,000	896	0.0329	0.0081	815
Fresno	780,600	537	0	0	489
Percent Fresno/Fresno County	60.0%				

Other Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,301,000	1,468	0.384	0.12457	1,375
Fresno	780,600	881	0	0	825
Percent Fresno/Fresno County	60.0%				

Total Fresno 1,314

Notes:

Emissions for Fresno County are from OFFROAD2007 for the year assessed; emissions from Fresno are apportioned based on population.

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

2020 Emissions (MTCO ₂ e per person)*	0.89
--	------

Fresno

Population	780,600
Emissions (MTCO ₂ e per person)	694,734
(estimated by using 2020 California per person emissions)	

Sources/Notes:

* 2020 California per capita emissions rate.

Community Greenhouse Gas Inventory

Summary

Year: 2050

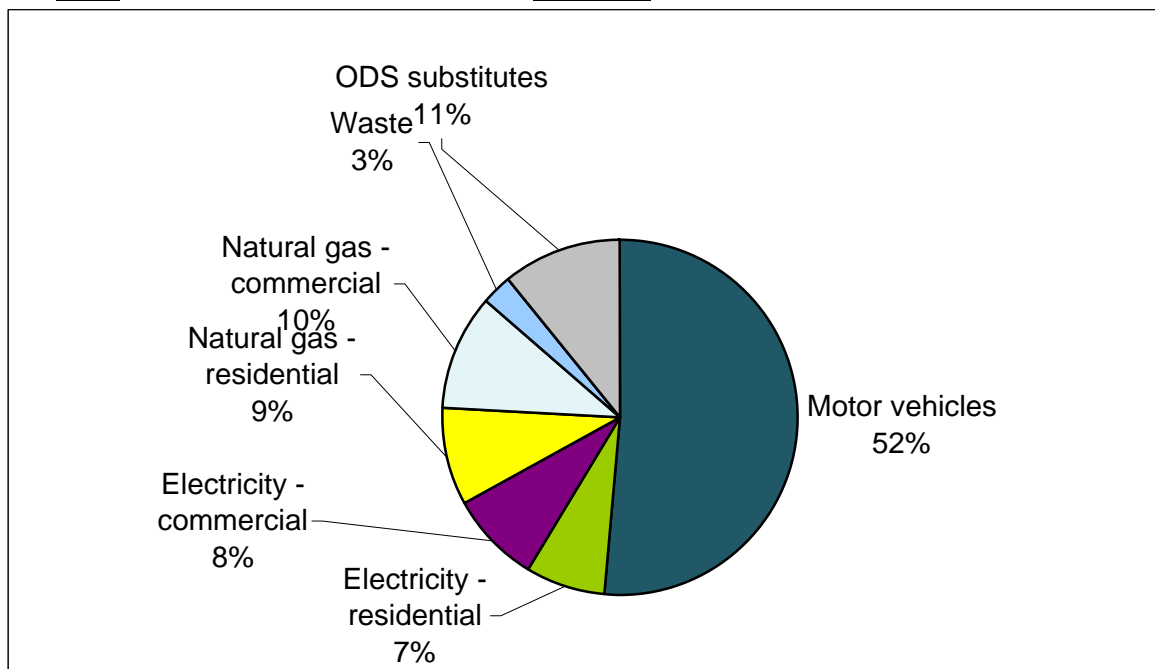
Prepared by FirstCarbon Solutions

	Data	Source
City Information		
Population	912,600	Fresno COG
Employment	362,114	
County Information		
Population	1,521,000	Fresno COG

-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050.
Produced under contract by: The Planning Center|DC&E. March 2012.

-Employment: Took the 2010 population (545,000) and 2010 employment (183,825) and cross multiplied with the 2050 population (912,600) and the 2050 employment number (X).

Emissions (MTCO₂e/year)	Without Regulation	With Pavley I and LCFS
Motor vehicles	3,832,694	3,832,694
Electricity - residential	548,921	
Electricity - commercial	626,137	
Natural gas - residential	670,082	
Natural gas - commercial	776,459	
Waste	207,525	
Offroad equipment	1,314	
ODS substitutes	812,214	
<u>Total</u>	<u>7,475,346</u>	



Community Greenhouse Gas Inventory

Waste

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Emissions

Emissions (MTCO ₂ e)*	207,525	
Emissions (MTCO ₂ e/person)	0.2274	2010 waste emissions per person

Notes:

*Emissions were calculated by multiplying the 2010 per capita rate by the population for this year.

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without Regulation)

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **18,485,093** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 6,747,058,945 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,287	0	1,287	5
5 - 10 MPH	1,069	1,251	0	2,320	5
10 - 15 MPH	208,444	269,072	572,246	1,049,761	10
15 - 20 MPH	7,043	10,422	11,009	28,474	15
20 - 25 MPH	30,820	51,517	87,828	170,165	20
25 - 30 MPH	125,883	166,689	362,192	654,764	25
30 - 35 MPH	139,515	220,787	275,798	636,099	30
35 - 40 MPH	821,839	1,064,855	2,145,729	4,032,424	35
40 - 45 MPH	367,528	448,475	985,202	1,801,204	40
45 - 50 MPH	312,650	411,980	1,213,378	1,938,008	45
50 - 55 MPH	169,096	238,867	574,977	982,940	50
55 - 60 MPH	750,525	892,376	2,110,693	3,753,594	55
60 - 65 MPH	719,505	893,806	1,820,505	3,433,817	60
65 - 70 MPH	40	52	143	236	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	3,653,958	4,671,436	10,159,699	18,485,093	

Source:
 Fehr and Peers. 2013. 2050 VMT was found by multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 40 years of VMT growth between 2010 and 2050 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2010 and 2056 VMT: $(((2056 \text{ VMT} - 2010 \text{ VMT}) / 46 \text{ years}) = .0254)$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	3607	1049761	28474	170165	654764	636099	4032424	1801204	1938008	982940	3753594	3433817	236	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	40.99%	0.11%	GAS Heavy duty 0.5% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	5.72%	0.01%	Light trucks 44.8% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.28%	0.01%	Passenger 41.5% LDA, MCY
LHD1	2.71%	1.95%	DSL Heavy duty 10.6% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.30%	0.46%	Light trucks 2.4% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.56%	0.00%	Passenger 0.1% LDA, MCY
MDV	19.74%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.10%	0.14%	
SBUS	0.02%	0.09%	
T6	0.18%	1.83%	
T7	0.03%	8.38%	
UBUS	0.06%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1118	835	645	511	424	365	326	302	291	290	301	324	362	388	0
LDT1		1277	953	736	584	484	417	372	345	332	332	344	370	413	443	0
LDT2		1541	1151	889	704	584	503	450	416	401	400	415	446	498	534	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		222	204	176	154	137	124	114	107	101	98	97	97	99	104	0
MDV		1916	1431	1105	875	726	625	559	517	498	497	516	555	620	664	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without Regulation)

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		363	363	363	363	363	363	363	363	363	363	363	363	363	363	0
LDT1		373	373	373	373	373	373	373	373	373	373	373	373	373	373	0
LDT2		371	371	371	371	371	371	371	371	371	371	371	371	371	371	0
LHD1		533	533	533	533	533	533	533	533	533	533	533	0	0	0	0
LHD2		535	535	535	535	535	535	535	535	535	535	535	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		369	369	369	369	369	369	369	369	369	369	369	369	369	369	0
MH		2381	2162	1775	1457	1307	1226	1160	1107	1068	1042	1030	1032	1047	0	0
OBUS		3085	2487	2025	1711	1595	1551	1530	1421	1443	1399	1360	1188	1365	0	0
SBUS		2650	2189	1798	1418	1323	1242	1175	1121	1081	1055	1043	1045	0	0	0
T6		2621	2165	1778	1403	1309	1228	1162	1109	1070	1044	1032	1034	1049	0	0
T7		4026	3326	2731	2156	2010	1887	1784	1703	1643	1603	1585	1587	1611	0	0
UBUS		2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1479	430310	11672	69753	268396	260745	1652939	738335	794413	402919	1538643	1407563	97	0	0
LDT1		207	60097	1630	9742	37484	36416	230850	103116	110948	56272	214888	196581	14	0	0
LDT2		587	170857	4634	27696	106568	103530	656310	293161	315427	159982	610928	558882	38	0	0
LHD1		98	28493	773	4619	17772	17265	109449	48889	52602	26679	101881	93202	6	0	0
LHD2		11	3159	86	512	1970	1914	12133	5420	5831	2958	11294	10332	1	0	0
MCY		20	5832	158	945	3638	3534	22403	10007	10767	5461	20854	19077	1	0	0
MDV		712	207238	5621	33593	129260	125575	796057	355583	382590	194046	741013	677884	47	0	0
MH		6	1623	44	263	1012	983	6234	2785	2996	1520	5803	5309	0	0	0
OBUS		4	1083	29	176	676	656	4161	1859	2000	1014	3873	3543	0	0	0
SBUS		1	230	6	37	144	140	885	395	426	216	824	754	0	0	0
T6		7	1895	51	307	1182	1148	7278	3251	3498	1774	6775	6198	0	0	0
T7		1	269	7	44	168	163	1033	461	496	252	961	880	0	0	0
UBUS		2	592	16	96	369	359	2273	1015	1092	554	2116	1936	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		4	1166	32	189	727	707	4479	2001	2153	1092	4169	3814	0	0	0
LDT1		0	92	2	15	57	55	352	157	169	86	327	299	0	0	0
LDT2		0	80	2	13	50	49	308	138	148	75	287	262	0	0	0
LHD1		70	20441	554	3313	12750	12386	78519	35073	37737	19140	73090	66863	5	0	0
LHD2		17	4878	132	791	3043	2956	18739	8370	9006	4568	17443	15957	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	94	3	15	59	57	361	161	174	88	336	307	0	0	0
MH		1	290	8	47	181	176	1116	498	536	272	1039	950	0	0	0
OBUS		5	1490	40	242	929	903	5723	2556	2751	1395	5327	4874	0	0	0
SBUS		3	940	25	152	586	569	3609	1612	1734	880	3359	3073	0	0	0
T6		66	19236	522	3118	11998	11656	73892	33006	35513	18012	68782	62922	4	0	0
T7		302	88008	2387	14266	54893	53328	338065	151007	162476	82406	314689	287880	20	0	0
UBUS		5	1368	37	222	853	829	5254	2347	2525	1281	4891	4474	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		664	144,247	3,022	14,305	45,672	38,189	216,428	89,501	92,689	46,962	185,936	182,895	14	0	0	1,059,859
LDT1		106	22,994	481	2,282	7,286	6,092	34,524	14,280	14,789	7,493	29,665	29,183	2	0	0	169,072
LDT2		363	78,938	1,654	7,830	24,998	20,902	118,457	48,989	50,734	25,705	101,772	100,111	8	0	0	580,098
LHD1		99	23,293	432	1,866	5,480	4,294	23,196	9,328	9,547	4,867	19,733	0	0	0	102,036	

Community Greenhouse Gas Inventory

Motor Vehicle Emissions (without Regulation)

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	11	2,582	48	207	608	476	2,571	1,034	1,058	539	2,188	0	0	0	0	11,311	
MCY	2	479	11	58	200	176	1,025	428	438	215	808	742	0	0	0	4,582	
MDV	548	119,044	2,494	11,806	37,691	31,515	178,608	73,860	76,491	38,755	153,443	150,933	12	0	0	874,652	
MH	6	1,327	25	106	312	245	1,321	531	544	277	1,124	1,154	0	0	0	6,966	
OBUS	4	886	16	71	208	163	882	355	363	185	750	770	0	0	0	4,649	
SBUS	1	188	3	15	44	35	188	75	77	39	160	164	0	0	0	989	
T6	7	1,549	29	124	364	286	1,542	620	635	324	1,312	1,347	0	0	0	8,132	
T7	1	220	4	18	52	41	219	88	90	46	186	191	0	0	0	1,154	
UBUS	2	484	9	39	114	89	482	194	198	101	410	421	0	0	0	2,540	
Total	1,812	396,229	8,229	38,727	123,029	102,502	579,444	239,285	247,654	125,507	497,488	467,910	36	0	0	2,827,852	
DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	170	5	28	106	103	653	292	314	159	607	556	0	0	0	0	2,991
LDT1	0	14	0	2	9	8	53	24	25	13	49	45	0	0	0	0	241
LDT2	0	12	0	2	7	7	46	21	22	11	43	39	0	0	0	0	210
LHD1	15	4,371	119	709	2,726	2,649	16,790	7,500	8,069	4,093	15,629	0	0	0	0	0	62,653
LHD2	4	1,048	28	170	653	635	4,024	1,797	1,934	981	3,746	0	0	0	0	0	15,016
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	14	0	2	9	8	53	24	26	13	50	46	0	0	0	0	245
MH	1	252	6	28	95	87	520	222	230	114	430	394	0	0	0	0	2,375
OBUS	6	1,488	33	166	595	562	3,516	1,459	1,594	784	2,909	2,325	0	0	0	0	15,430
SBUS	3	826	18	87	311	284	1,702	726	753	373	1,407	1,289	0	0	0	0	7,776
T6	70	16,725	372	1,756	6,305	5,749	34,469	14,695	15,250	7,549	28,497	26,111	2	0	0	0	157,480
T7	489	117,510	2,617	12,349	44,297	40,394	242,181	103,245	107,149	53,041	200,224	183,462	13	0	0	0	1,106,484
UBUS	5	1,443	39	234	900	874	5,543	2,476	2,664	1,351	5,160	4,720	0	0	0	0	25,405
Total	593	143,872	3,238	15,532	56,013	51,361	309,549	132,478	138,030	68,482	258,750	218,987	15	0	0	0	1,396,900

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	4,224,751	3,832,694	3,832,694

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **18,485,093** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 6,747,058,945 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,287	0	1,287	5
5 - 10 MPH	1,069	1,251	0	2,320	5
10 - 15 MPH	208,444	269,072	572,246	1,049,761	10
15 - 20 MPH	7,043	10,422	11,009	28,474	15
20 - 25 MPH	30,820	51,517	87,828	170,165	20
25 - 30 MPH	125,883	166,689	362,192	654,764	25
30 - 35 MPH	139,515	220,787	275,798	636,099	30
35 - 40 MPH	821,839	1,064,855	2,145,729	4,032,424	35
40 - 45 MPH	367,528	448,475	985,202	1,801,204	40
45 - 50 MPH	312,650	411,980	1,213,378	1,938,008	45
50 - 55 MPH	169,096	238,867	574,977	982,940	50
55 - 60 MPH	750,525	892,376	2,110,693	3,753,594	55
60 - 65 MPH	719,505	893,806	1,820,505	3,433,817	60
65 - 70 MPH	40	52	143	236	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	3,653,958	4,671,436	10,159,699	18,485,093	

Source:
 Fehr and Peers. 2013. 2050 VMT was found by multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 40 years of VMT growth between 2010 and 2050 and adding that to the 2010 VMT.
 Annual VMT Growth Rate: Was found by interpolating between 2010 and 2056 VMT: $[(2056 \text{ VMT} - 2010 \text{ VMT}) / 46 \text{ years} = .0254]$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	3607	1049761	28474	170165	654764	636099	4032424	1801204	1938008	982940	3753594	3433817	236	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	40.99%	0.11%	GAS Heavy duty 0.5% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	5.72%	0.01%	Light trucks 44.8% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.28%	0.01%	Passenger 41.5% LDA, MCY
LHD1	2.71%	1.95%	DSL Heavy duty 10.6% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.30%	0.46%	Light trucks 2.4% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.56%	0.00%	Passenger 0.1% LDA, MCY
MDV	19.74%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.10%	0.14%	
SBUS	0.02%	0.09%	
T6	0.18%	1.83%	
T7	0.03%	8.38%	
UBUS	0.06%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1118	835	645	511	424	365	326	302	291	290	301	324	362	388	0
LDT1		1277	953	736	584	484	417	372	345	332	332	344	370	413	443	0
LDT2		1541	1151	889	704	584	503	450	416	401	400	415	446	498	534	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		222	204	176	154	137	124	114	107	101	98	97	97	99	104	0
MDV		1916	1431	1105	875	726	625	559	517	498	497	516	555	620	664	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		363	363	363	363	363	363	363	363	363	363	363	363	363	363	0
LDT1		373	373	373	373	373	373	373	373	373	373	373	373	373	373	0
LDT2		371	371	371	371	371	371	371	371	371	371	371	371	371	371	0
LHD1		533	533	533	533	533	533	533	533	533	533	533	0	0	0	0
LHD2		535	535	535	535	535	535	535	535	535	535	535	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		369	369	369	369	369	369	369	369	369	369	369	369	369	369	0
MH		2381	2162	1775	1457	1307	1226	1160	1107	1068	1042	1030	1032	1047	0	0
OBUS		3085	2487	2025	1711	1595	1551	1530	1421	1443	1399	1360	1188	1365	0	0
SBUS		2650	2189	1798	1418	1323	1242	1175	1121	1081	1055	1043	1045	0	0	0
T6		2621	2165	1778	1403	1309	1228	1162	1109	1070	1044	1032	1034	1049	0	0
T7		4026	3326	2731	2156	2010	1887	1784	1703	1643	1603	1585	1587	1611	0	0
UBUS		2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1479	430310	11672	69753	268396	260745	1652939	738335	794413	402919	1538643	1407563	97	0	0
LDT1		207	60097	1630	9742	37484	36416	230850	103116	110948	56272	214888	196581	14	0	0
LDT2		587	170857	4634	27696	106568	103530	656310	293161	315427	159982	610928	558882	38	0	0
LHD1		98	28493	773	4619	17772	17265	109449	48889	52602	26679	101881	93202	6	0	0
LHD2		11	3159	86	512	1970	1914	12133	5420	5831	2958	11294	10332	1	0	0
MCY		20	5832	158	945	3638	3534	22403	10007	10767	5461	20854	19077	1	0	0
MDV		712	207238	5621	33593	129260	125575	796057	355583	382590	194046	741013	677884	47	0	0
MH		6	1623	44	263	1012	983	6234	2785	2996	1520	5803	5309	0	0	0
OBUS		4	1083	29	176	676	656	4161	1859	2000	1014	3873	3543	0	0	0
SBUS		1	230	6	37	144	140	885	395	426	216	824	754	0	0	0
T6		7	1895	51	307	1182	1148	7278	3251	3498	1774	6775	6198	0	0	0
T7		1	269	7	44	168	163	1033	461	496	252	961	880	0	0	0
UBUS		2	592	16	96	369	359	2273	1015	1092	554	2116	1936	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		4	1166	32	189	727	707	4479	2001	2153	1092	4169	3814	0	0	0
LDT1		0	92	2	15	57	55	352	157	169	86	327	299	0	0	0
LDT2		0	80	2	13	50	49	308	138	148	75	287	262	0	0	0
LHD1		70	20441	554	3313	12750	12386	78519	35073	37737	19140	73090	66863	5	0	0
LHD2		17	4878	132	791	3043	2956	18739	8370	9006	4568	17443	15957	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	94	3	15	59	57	361	161	174	88	336	307	0	0	0
MH		1	290	8	47	181	176	1116	498	536	272	1039	950	0	0	0
OBUS		5	1490	40	242	929	903	5723	2556	2751	1395	5327	4874	0	0	0
SBUS		3	940	25	152	586	569	3609	1612	1734	880	3359	3073	0	0	0
T6		66	19236	522	3118	11998	11656	73892	33006	35513	18012	68782	62922	4	0	0
T7		302	88008	2387	14266	54893	53328	338065	151007	162476	82406	314689	287880	20	0	0
UBUS		5	1368	37	222	853	829	5254	2347	2525	1281	4891	4474	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		664	144,247	3,022	14,305	45,672	38,189	216,428	89,501	92,689	46,962	185,936	182,895	14	0	0	1,059,859
LDT1		106	22,994	481	2,282	7,286	6,092	34,524	14,280	14,789	7,493	29,665	29,183	2	0	0	169,072
LDT2		363	78,938	1,654	7,830	24,998	20,902	118,457	48,989	50,734	25,705	101,772	100,111	8	0	0	580,098
LHD1		99	23,293	432	1,866	5,480	4,294	23,196	9,328	9,547	4,867	19,733	0	0	0	102,036	

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	11	2,582	48	207	608	476	2,571	1,034	1,058	539	2,188	0	0	0	0	11,311
MCY	2	479	11	58	200	176	1,025	428	438	215	808	742	0	0	0	4,582
MDV	548	119,044	2,494	11,806	37,691	31,515	178,608	73,860	76,491	38,755	153,443	150,933	12	0	0	874,652
MH	6	1,327	25	106	312	245	1,321	531	544	277	1,124	1,154	0	0	0	6,966
OBUS	4	886	16	71	208	163	882	355	363	185	750	770	0	0	0	4,649
SBUS	1	188	3	15	44	35	188	75	77	39	160	164	0	0	0	989
T6	7	1,549	29	124	364	286	1,542	620	635	324	1,312	1,347	0	0	0	8,132
T7	1	220	4	18	52	41	219	88	90	46	186	191	0	0	0	1,154
UBUS	2	484	9	39	114	89	482	194	198	101	410	421	0	0	0	2,540
Total	1,812	396,229	8,229	38,727	123,029	102,502	579,444	239,285	247,654	125,507	497,488	467,910	36	0	0	2,827,852
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	170	5	28	106	103	653	292	314	159	607	556	0	0	0	2,991
LDT1	0	14	0	2	9	8	53	24	25	13	49	45	0	0	0	241
LDT2	0	12	0	2	7	7	46	21	22	11	43	39	0	0	0	210
LHD1	15	4,371	119	709	2,726	2,649	16,790	7,500	8,069	4,093	15,629	0	0	0	0	62,653
LHD2	4	1,048	28	170	653	635	4,024	1,797	1,934	981	3,746	0	0	0	0	15,016
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	14	0	2	9	8	53	24	26	13	50	46	0	0	0	245
MH	1	252	6	28	95	87	520	222	230	114	430	394	0	0	0	2,375
OBUS	6	1,488	33	166	595	562	3,516	1,459	1,594	784	2,909	2,325	0	0	0	15,430
SBUS	3	826	18	87	311	284	1,702	726	753	373	1,407	1,289	0	0	0	7,776
T6	70	16,725	372	1,756	6,305	5,749	34,469	14,695	15,250	7,549	28,497	26,111	2	0	0	157,480
T7	489	117,510	2,617	12,349	44,297	40,394	242,181	103,245	107,149	53,041	200,224	183,462	13	0	0	1,106,484
UBUS	5	1,443	39	234	900	874	5,543	2,476	2,664	1,351	5,160	4,720	0	0	0	25,405
Total	593	143,872	3,238	15,532	56,013	51,361	309,549	132,478	138,030	68,482	258,750	218,987	15	0	0	1,396,900

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	4,224,751	3,832,694	3,832,694

EMFAC 2011
 2005 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter: region - County: Fresno, year - 2005, season - annual average, vehicle category - EMFAC2007, model year - aggregated, speed - all speeds, fuel - all) Website: <http://www.arb.ca.gov/emfac/>
 2005 Emission Rates will be used for BAU calculations.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa) (gms/mile)	Percent of Total VMT
Fresno	2005	LDA	GAS	5	574.3459975	1117.902588	1117.90259	0.003%
Fresno	2005	LDA	DSL	5	1.55629378	362.9037298	362.90373	0.000%
Fresno	2005	LDA	GAS	10	1560.70567	834.9088117	834.908812	0.008%
Fresno	2005	LDA	DSL	10	4.229012934	362.9037176	362.903718	0.000%
Fresno	2005	LDA	GAS	15	1481.313242	644.9016731	644.901673	0.007%
Fresno	2005	LDA	DSL	15	4.013884191	362.9037424	362.903742	0.000%
Fresno	2005	LDA	GAS	20	384673.2535	510.8041631	510.804163	1.912%
Fresno	2005	LDA	DSL	20	1042.341227	362.903737	362.903737	0.005%
Fresno	2005	LDA	GAS	25	46631.55871	423.823398	423.823398	0.232%
Fresno	2005	LDA	DSL	25	126.3565868	362.903733	362.903733	0.001%
Fresno	2005	LDA	GAS	30	142960.6643	364.7820036	364.782004	0.711%
Fresno	2005	LDA	DSL	30	387.3776096	362.9037333	362.903733	0.002%
Fresno	2005	LDA	GAS	35	556848.446	326.1153018	326.115302	2.768%
Fresno	2005	LDA	DSL	35	1508.880862	362.9037744	362.903774	0.008%
Fresno	2005	LDA	GAS	40	1045053.417	301.9173486	301.917349	5.196%
Fresno	2005	LDA	DSL	40	2831.760101	362.9037532	362.903753	0.014%
Fresno	2005	LDA	GAS	45	898804.646	290.6000061	290.600006	4.469%
Fresno	2005	LDA	DSL	45	2435.472726	362.9037268	362.903727	0.012%
Fresno	2005	LDA	GAS	50	1236247.625	290.295843	290.295843	6.146%
Fresno	2005	LDA	DSL	50	3349.835262	362.9037543	362.903754	0.017%
Fresno	2005	LDA	GAS	55	881689.2606	300.9810314	300.981031	4.383%
Fresno	2005	LDA	DSL	55	2389.095509	362.90373	362.90373	0.012%
Fresno	2005	LDA	GAS	60	1065707.872	323.6299465	323.629947	5.298%
Fresno	2005	LDA	DSL	60	2887.727003	362.9037118	362.903712	0.014%
Fresno	2005	LDA	GAS	65	1052205.277	361.6105735	361.610573	5.231%
Fresno	2005	LDA	DSL	65	2851.139136	362.903729	362.903729	0.014%
Fresno	2005	LDA	GAS	70	930481.937	387.59416	387.59416	4.626%
Fresno	2005	LDA	DSL	70	2521.30786	362.9037511	362.903751	0.013%
Fresno	2005	LDT1	GAS	5	80.2134059	1277.383889	1277.38389	0.000%
Fresno	2005	LDT1	DSL	5	0.122139063	373.2062411	373.206241	0.000%
Fresno	2005	LDT1	GAS	10	217.9688072	952.9532874	952.953287	0.001%
Fresno	2005	LDT1	DSL	10	0.331895978	373.2062264	373.206226	0.000%
Fresno	2005	LDT1	GAS	15	206.8808052	735.6841431	735.684143	0.001%
Fresno	2005	LDT1	DSL	15	0.315012523	373.2062425	373.206242	0.000%
Fresno	2005	LDT1	GAS	20	53723.62363	583.5347772	583.534777	0.267%
Fresno	2005	LDT1	DSL	20	81.803698	373.206226	373.206226	0.000%
Fresno	2005	LDT1	GAS	25	6512.582938	484.1298404	484.12984	0.032%
Fresno	2005	LDT1	DSL	25	9.916557	373.2062055	373.206206	0.000%
Fresno	2005	LDT1	GAS	30	19965.94701	416.6904394	416.690439	0.099%
Fresno	2005	LDT1	DSL	30	30.4016764	373.2062064	373.206206	0.000%
Fresno	2005	LDT1	GAS	35	77769.69216	372.4778067	372.477807	0.387%
Fresno	2005	LDT1	DSL	35	118.418068	373.2062534	373.206253	0.001%
Fresno	2005	LDT1	GAS	40	145952.6125	344.9252398	344.92524	0.726%
Fresno	2005	LDT1	DSL	40	222.238591	373.2062401	373.20624	0.001%
Fresno	2005	LDT1	GAS	45	125527.4358	331.9868346	331.986835	0.624%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	LDT1	DSL	45	191.137656	373.2062577	373.206258	0.001%
Fresno	2005	LDT1	GAS	50	172654.8816	331.6326825	331.632682	0.858%
Fresno	2005	LDT1	DSL	50	262.897513	373.2062113	373.206211	0.001%
Fresno	2005	LDT1	GAS	55	123137.0906	343.8328444	343.832844	0.612%
Fresno	2005	LDT1	DSL	55	187.497965	373.2061963	373.206196	0.001%
Fresno	2005	LDT1	GAS	60	148837.2054	369.7469417	369.746942	0.740%
Fresno	2005	LDT1	DSL	60	226.630859	373.206311	373.206311	0.001%
Fresno	2005	LDT1	GAS	65	146951.4277	413.1036658	413.103666	0.731%
Fresno	2005	LDT1	DSL	65	223.759469	373.2062322	373.206232	0.001%
Fresno	2005	LDT1	GAS	70	129951.4999	442.7709544	442.770954	0.646%
Fresno	2005	LDT1	DSL	70	197.874089	373.2062236	373.206224	0.001%
Fresno	2005	LDT2	GAS	5	228.0478692	1541.14964	1541.14964	0.001%
Fresno	2005	LDT2	DSL	5	0.107040842	371.0954996	371.0955	0.000%
Fresno	2005	LDT2	GAS	10	619.688516	1150.709694	1150.70969	0.003%
Fresno	2005	LDT2	DSL	10	0.290868673	371.095504	371.095504	0.000%
Fresno	2005	LDT2	GAS	15	588.1651566	888.7202414	888.720241	0.003%
Fresno	2005	LDT2	DSL	15	0.276072268	371.0954901	371.09549	0.000%
Fresno	2005	LDT2	GAS	20	152737.0474	704.1586177	704.158618	0.759%
Fresno	2005	LDT2	DSL	20	71.691539	371.0954812	371.095481	0.000%
Fresno	2005	LDT2	GAS	25	18515.36584	584.2418904	584.24189	0.092%
Fresno	2005	LDT2	DSL	25	8.6907219	371.095481	371.095481	0.000%
Fresno	2005	LDT2	GAS	30	56763.47295	502.8540511	502.854051	0.282%
Fresno	2005	LDT2	DSL	30	26.6435743	371.0954791	371.095479	0.000%
Fresno	2005	LDT2	GAS	35	221100.3455	449.539312	449.539312	1.099%
Fresno	2005	LDT2	DSL	35	103.779821	371.0955143	371.095514	0.001%
Fresno	2005	LDT2	GAS	40	414945.4046	416.2074653	416.207465	2.063%
Fresno	2005	LDT2	DSL	40	194.766579	371.0954985	371.095498	0.001%
Fresno	2005	LDT2	GAS	45	356876.2901	400.603499	400.603499	1.774%
Fresno	2005	LDT2	DSL	45	167.510172	371.0955097	371.09551	0.001%
Fresno	2005	LDT2	GAS	50	490860.2714	400.1823445	400.182345	2.440%
Fresno	2005	LDT2	DSL	50	230.399436	371.09548	371.09548	0.001%
Fresno	2005	LDT2	GAS	55	350080.5216	414.9103501	414.91035	1.740%
Fresno	2005	LDT2	DSL	55	164.320381	371.0955152	371.095515	0.001%
Fresno	2005	LDT2	GAS	60	423146.3014	446.1440566	446.144057	2.104%
Fresno	2005	LDT2	DSL	60	198.615926	371.0954932	371.095493	0.001%
Fresno	2005	LDT2	GAS	65	417785.0125	498.4924137	498.492414	2.077%
Fresno	2005	LDT2	DSL	65	196.099447	371.0954901	371.09549	0.001%
Fresno	2005	LDT2	GAS	70	369453.9847	534.3069769	534.306977	1.837%
Fresno	2005	LDT2	DSL	70	173.41387	371.0955028	371.095503	0.001%
Fresno	2005	LHD1	GAS	5	15493.27829	2513.497349	2513.49735	0.077%
Fresno	2005	LHD1	DSL	5	6887.103617	532.5794	532.5794	0.034%
Fresno	2005	LHD1	GAS	10	40399.97733	2036.128182	2036.12818	0.201%
Fresno	2005	LHD1	DSL	10	22902.76288	532.5792393	532.579239	0.114%
Fresno	2005	LHD1	GAS	15	91996.19282	1392.429536	1392.42954	0.457%
Fresno	2005	LHD1	DSL	15	49600.82188	532.5792921	532.579292	0.247%
Fresno	2005	LHD1	GAS	20	106300.888	1006.068544	1006.06854	0.528%
Fresno	2005	LHD1	DSL	20	54378.52199	532.5792617	532.579262	0.270%
Fresno	2005	LHD1	GAS	25	81884.45437	768.0121288	768.012129	0.407%
Fresno	2005	LHD1	DSL	25	58199.51987	532.5793513	532.579351	0.289%
Fresno	2005	LHD1	GAS	30	72412.73099	619.4335923	619.433592	0.360%
Fresno	2005	LHD1	DSL	30	49127.77262	532.5792941	532.579294	0.244%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of
								Total VMT
Fresno	2005	LHD1	GAS	35	27058.00658	527.8465902	527.84659	0.135%
Fresno	2005	LHD1	DSL	35	25926.63204	532.579317	532.579317	0.129%
Fresno	2005	LHD1	GAS	40	7986.90704	475.2331456	475.233146	0.040%
Fresno	2005	LHD1	DSL	40	14232.8744	532.5792642	532.579264	0.071%
Fresno	2005	LHD1	GAS	45	9832.585266	452.0558438	452.055844	0.049%
Fresno	2005	LHD1	DSL	45	15361.95268	532.5792928	532.579293	0.076%
Fresno	2005	LHD1	GAS	50	72602.43931	454.3217938	454.321794	0.361%
Fresno	2005	LHD1	DSL	50	59317.36357	532.5793236	532.579324	0.295%
Fresno	2005	LHD1	GAS	55	19969.09783	482.4155587	482.415559	0.099%
Fresno	2005	LHD1	DSL	55	35721.45554	532.5792563	532.579256	0.178%
Fresno	2005	LHD2	GAS	5	1717.546588	2513.497194	2513.49719	0.009%
Fresno	2005	LHD2	DSL	5	1643.654028	534.8240705	534.824071	0.008%
Fresno	2005	LHD2	GAS	10	4478.641561	2036.128258	2036.12826	0.022%
Fresno	2005	LHD2	DSL	10	5465.899708	534.8239928	534.823993	0.027%
Fresno	2005	LHD2	GAS	15	10198.47067	1392.429599	1392.4296	0.051%
Fresno	2005	LHD2	DSL	15	11837.57275	534.8239985	534.823999	0.059%
Fresno	2005	LHD2	GAS	20	11784.25424	1006.068517	1006.06852	0.059%
Fresno	2005	LHD2	DSL	20	12977.80233	534.8240078	534.824008	0.065%
Fresno	2005	LHD2	GAS	25	9077.508294	768.0121044	768.012104	0.045%
Fresno	2005	LHD2	DSL	25	13889.71073	534.8240484	534.824048	0.069%
Fresno	2005	LHD2	GAS	30	8027.49616	619.4336218	619.433622	0.040%
Fresno	2005	LHD2	DSL	30	11724.67582	534.824037	534.824037	0.058%
Fresno	2005	LHD2	GAS	35	2999.584099	527.846466	527.846466	0.015%
Fresno	2005	LHD2	DSL	35	6187.566882	534.8240546	534.824055	0.031%
Fresno	2005	LHD2	GAS	40	885.4087913	475.2331522	475.233152	0.004%
Fresno	2005	LHD2	DSL	40	3396.771437	534.8241463	534.824146	0.017%
Fresno	2005	LHD2	GAS	45	1090.016138	452.0558109	452.055811	0.005%
Fresno	2005	LHD2	DSL	45	3666.233792	534.824068	534.824068	0.018%
Fresno	2005	LHD2	GAS	50	8048.527309	454.3218106	454.321811	0.040%
Fresno	2005	LHD2	DSL	50	14156.48996	534.8240631	534.824063	0.070%
Fresno	2005	LHD2	GAS	55	2213.724954	482.415483	482.415483	0.011%
Fresno	2005	LHD2	DSL	55	8525.166441	534.8240334	534.824033	0.042%
Fresno	2005	MCY	GAS	5	7.7843384	221.6010944	221.601094	0.000%
Fresno	2005	MCY	GAS	10	21.1528613	204.3809145	204.380914	0.000%
Fresno	2005	MCY	GAS	15	20.07682252	176.0040917	176.004092	0.000%
Fresno	2005	MCY	GAS	20	5213.628487	154.0664735	154.066474	0.026%
Fresno	2005	MCY	GAS	25	632.0158685	137.0847399	137.08474	0.003%
Fresno	2005	MCY	GAS	30	1937.602297	123.9888015	123.988801	0.010%
Fresno	2005	MCY	GAS	35	7547.186875	114.0069527	114.006953	0.038%
Fresno	2005	MCY	GAS	40	14164.02356	106.5882594	106.588259	0.070%
Fresno	2005	MCY	GAS	45	12181.85384	101.351138	101.351138	0.061%
Fresno	2005	MCY	GAS	50	16755.35397	98.0507808	98.0507808	0.083%
Fresno	2005	MCY	GAS	55	11949.88349	96.5621063	96.5621063	0.059%
Fresno	2005	MCY	GAS	60	14443.95889	96.87654461	96.8765446	0.072%
Fresno	2005	MCY	GAS	65	14260.95394	99.1149102	99.1149102	0.071%
Fresno	2005	MCY	GAS	70	12611.18911	103.5614952	103.561495	0.063%
Fresno	2005	MDV	GAS	5	276.6057878	1915.561564	1915.56156	0.001%
Fresno	2005	MDV	DSL	5	0.125445122	369.0636663	369.063666	0.000%
Fresno	2005	MDV	GAS	10	751.6379153	1430.71487	1430.71487	0.004%
Fresno	2005	MDV	DSL	10	0.34087976	369.0636324	369.063632	0.000%
Fresno	2005	MDV	GAS	15	713.402331	1105.142376	1105.14238	0.004%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	MDV	DSL	15	0.323539357	369.0636164	369.063616	0.000%
Fresno	2005	MDV	GAS	20	185259.1327	875.2888262	875.288826	0.921%
Fresno	2005	MDV	DSL	20	84.01796496	369.0636582	369.063658	0.000%
Fresno	2005	MDV	GAS	25	22457.81699	726.2455563	726.245556	0.112%
Fresno	2005	MDV	DSL	25	10.18497853	369.0636516	369.063652	0.000%
Fresno	2005	MDV	GAS	30	68850.04116	625.0744431	625.074443	0.342%
Fresno	2005	MDV	DSL	30	31.22459012	369.0636522	369.063652	0.000%
Fresno	2005	MDV	GAS	35	268178.9233	558.8198391	558.819839	1.333%
Fresno	2005	MDV	DSL	35	121.6234022	369.0637076	369.063708	0.001%
Fresno	2005	MDV	GAS	40	503299.0839	517.3492783	517.349278	2.502%
Fresno	2005	MDV	DSL	40	228.2541587	369.0636653	369.063665	0.001%
Fresno	2005	MDV	GAS	45	432865.4758	497.9571493	497.957149	2.152%
Fresno	2005	MDV	DSL	45	196.3113735	369.0636861	369.063686	0.001%
Fresno	2005	MDV	GAS	50	595378.4851	497.4363565	497.436356	2.960%
Fresno	2005	MDV	DSL	50	270.0136082	369.0636733	369.063673	0.001%
Fresno	2005	MDV	GAS	55	424622.6866	515.7464096	515.74641	2.111%
Fresno	2005	MDV	DSL	55	192.5731227	369.0637145	369.063714	0.001%
Fresno	2005	MDV	GAS	60	513246.2809	554.5537379	554.553738	2.552%
Fresno	2005	MDV	DSL	60	232.7653436	369.0636774	369.063677	0.001%
Fresno	2005	MDV	GAS	65	506743.4137	619.6376375	619.637637	2.519%
Fresno	2005	MDV	DSL	65	229.8161802	369.0636924	369.063692	0.001%
Fresno	2005	MDV	GAS	70	448121.3124	664.1628397	664.16284	2.228%
Fresno	2005	MDV	DSL	70	203.2301423	369.0636551	369.063655	0.001%
Fresno	2005	MH	GAS	5	268.9167968	2513.497406	2513.49741	0.001%
Fresno	2005	MH	DSL	5	44.76225056	2381.129731	2381.12973	0.000%
Fresno	2005	MH	GAS	10	1351.847182	2036.128315	2036.12831	0.007%
Fresno	2005	MH	DSL	10	222.8096365	2162.072949	2162.07295	0.001%
Fresno	2005	MH	GAS	15	1707.614697	1392.429658	1392.42966	0.008%
Fresno	2005	MH	DSL	15	300.715632	1775.243505	1775.24351	0.001%
Fresno	2005	MH	GAS	20	1771.215993	1006.068537	1006.06854	0.009%
Fresno	2005	MH	DSL	20	318.91989	1456.791888	1456.79189	0.002%
Fresno	2005	MH	GAS	25	1973.543913	768.012138	768.012138	0.010%
Fresno	2005	MH	DSL	25	332.1424004	1306.661906	1306.66191	0.002%
Fresno	2005	MH	GAS	30	2231.372516	619.4336513	619.433651	0.011%
Fresno	2005	MH	DSL	30	399.3743491	1226.495736	1226.49574	0.002%
Fresno	2005	MH	GAS	35	2773.257546	527.8465727	527.846573	0.014%
Fresno	2005	MH	DSL	35	470.9149121	1159.967885	1159.96789	0.002%
Fresno	2005	MH	GAS	40	3452.419773	475.233224	475.233224	0.017%
Fresno	2005	MH	DSL	40	584.5676013	1107.078048	1107.07805	0.003%
Fresno	2005	MH	GAS	45	3148.370866	452.0558634	452.055863	0.016%
Fresno	2005	MH	DSL	45	478.6833316	1067.826603	1067.8266	0.002%
Fresno	2005	MH	GAS	50	3064.012004	454.3218205	454.321821	0.015%
Fresno	2005	MH	DSL	50	535.7245191	1042.213217	1042.21322	0.003%
Fresno	2005	MH	GAS	55	4007.448442	482.4155989	482.415599	0.020%
Fresno	2005	MH	DSL	55	785.0557197	1030.238195	1030.2382	0.004%
Fresno	2005	MH	GAS	60	4624.41305	541.2091675	541.209168	0.023%
Fresno	2005	MH	DSL	60	943.3760148	1031.901337	1031.90134	0.005%
Fresno	2005	MH	GAS	65	722.62303	641.4979244	641.497924	0.004%
Fresno	2005	MH	DSL	65	148.4605629	1047.202697	1047.2027	0.001%
Fresno	2005	OBUS	GAS	5	179.4898447	2513.497341	2513.49734	0.001%
Fresno	2005	OBUS	DSL	5	165.7644542	3084.635701	3084.6357	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	OBUS	GAS	10	902.2969282	2036.128585	2036.12858	0.004%
Fresno	2005	OBUS	DSL	10	764.4488042	2486.733654	2486.73365	0.004%
Fresno	2005	OBUS	GAS	15	1139.755796	1392.429568	1392.42957	0.006%
Fresno	2005	OBUS	DSL	15	1006.387031	2024.544507	2024.54451	0.005%
Fresno	2005	OBUS	GAS	20	1182.206665	1006.068712	1006.06871	0.006%
Fresno	2005	OBUS	DSL	20	1343.731614	1711.279078	1711.27908	0.007%
Fresno	2005	OBUS	GAS	25	1317.251509	768.0121314	768.012131	0.007%
Fresno	2005	OBUS	DSL	25	1394.142051	1595.098427	1595.09843	0.007%
Fresno	2005	OBUS	GAS	30	1489.340651	619.4336132	619.433613	0.007%
Fresno	2005	OBUS	DSL	30	1945.026661	1550.74938	1550.74938	0.010%
Fresno	2005	OBUS	GAS	35	1851.024293	527.8466067	527.846607	0.009%
Fresno	2005	OBUS	DSL	35	2872.193717	1530.258857	1530.25886	0.014%
Fresno	2005	OBUS	GAS	40	2304.334444	475.2331835	475.233184	0.011%
Fresno	2005	OBUS	DSL	40	3065.466762	1421.24912	1421.24912	0.015%
Fresno	2005	OBUS	GAS	45	2101.3955	452.0558515	452.055852	0.010%
Fresno	2005	OBUS	DSL	45	3431.453572	1443.331847	1443.33185	0.017%
Fresno	2005	OBUS	GAS	50	2045.089835	454.321748	454.321748	0.010%
Fresno	2005	OBUS	DSL	50	3664.621488	1399.471266	1399.47127	0.018%
Fresno	2005	OBUS	GAS	55	2674.791345	482.4155895	482.415589	0.013%
Fresno	2005	OBUS	DSL	55	4802.489099	1359.79194	1359.79194	0.024%
Fresno	2005	OBUS	GAS	60	3086.587339	541.2091188	541.209119	0.015%
Fresno	2005	OBUS	DSL	60	3246.411046	1188.092655	1188.09266	0.016%
Fresno	2005	OBUS	GAS	65	482.3182765	641.497927	641.497927	0.002%
Fresno	2005	OBUS	DSL	65	845.5605614	1365.372637	1365.37264	0.004%
Fresno	2005	SBUS	GAS	5	43.72972372	2513.49706	2513.49706	0.000%
Fresno	2005	SBUS	DSL	5	178.2500641	2650.118082	2650.11808	0.001%
Fresno	2005	SBUS	GAS	10	153.2704446	2036.128028	2036.12803	0.001%
Fresno	2005	SBUS	DSL	10	624.7573386	2189.204641	2189.20464	0.003%
Fresno	2005	SBUS	GAS	15	306.5408773	1392.429627	1392.42963	0.002%
Fresno	2005	SBUS	DSL	15	1249.514677	1797.52678	1797.52678	0.006%
Fresno	2005	SBUS	GAS	20	416.0794089	1006.068501	1006.0685	0.002%
Fresno	2005	SBUS	DSL	20	1696.012951	1418.069831	1418.06983	0.008%
Fresno	2005	SBUS	GAS	25	656.8093052	768.0121132	768.012113	0.003%
Fresno	2005	SBUS	DSL	25	2677.270418	1323.090846	1323.09085	0.013%
Fresno	2005	SBUS	GAS	30	787.9984747	619.4336026	619.433603	0.004%
Fresno	2005	SBUS	DSL	30	3212.02061	1241.920828	1241.92083	0.016%
Fresno	2005	SBUS	GAS	35	808.7813293	527.8465156	527.846516	0.004%
Fresno	2005	SBUS	DSL	35	3296.735071	1174.559776	1174.55978	0.016%
Fresno	2005	SBUS	GAS	40	545.9701739	475.2331343	475.233134	0.003%
Fresno	2005	SBUS	DSL	40	2225.470458	1121.007691	1121.00769	0.011%
Fresno	2005	SBUS	GAS	45	261.9433353	452.0558193	452.055819	0.001%
Fresno	2005	SBUS	DSL	45	1067.727156	1081.264572	1081.26457	0.005%
Fresno	2005	SBUS	GAS	50	131.1891745	454.3217491	454.321749	0.001%
Fresno	2005	SBUS	DSL	50	534.7501924	1055.33042	1055.33042	0.003%
Fresno	2005	SBUS	GAS	55	195.2667083	482.415443	482.415443	0.001%
Fresno	2005	SBUS	DSL	55	795.9414888	1043.205234	1043.20523	0.004%
Fresno	2005	SBUS	GAS	60	108.6750878	541.2091468	541.209147	0.001%
Fresno	2005	SBUS	DSL	60	442.9788178	1044.889015	1044.88902	0.002%
Fresno	2005	T6	GAS	5	313.9394	2513.49736	2513.49736	0.002%
Fresno	2005	T6	DSL	5	2964.362997	2621.415259	2621.41526	0.015%
Fresno	2005	T6	GAS	10	1578.176144	2036.128442	2036.12844	0.008%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	T6	DSL	10	14755.48228	2165.493866	2165.49387	0.073%
Fresno	2005	T6	GAS	15	1993.506875	1392.42983	1392.42983	0.010%
Fresno	2005	T6	DSL	15	19914.77964	1778.058179	1778.05818	0.099%
Fresno	2005	T6	GAS	20	2067.756551	1006.068559	1006.06856	0.010%
Fresno	2005	T6	DSL	20	21120.34755	1402.711041	1402.71104	0.105%
Fresno	2005	T6	GAS	25	2303.958615	768.012209	768.012209	0.011%
Fresno	2005	T6	DSL	25	21996.00436	1308.760752	1308.76075	0.109%
Fresno	2005	T6	GAS	30	2604.953592	619.4336025	619.433602	0.013%
Fresno	2005	T6	DSL	30	26448.41322	1228.469867	1228.46987	0.131%
Fresno	2005	T6	GAS	35	3237.56208	527.8465737	527.846574	0.016%
Fresno	2005	T6	DSL	35	31186.16258	1161.838388	1161.83839	0.155%
Fresno	2005	T6	GAS	40	4030.43084	475.2332482	475.233248	0.020%
Fresno	2005	T6	DSL	40	38712.76602	1108.866313	1108.86631	0.192%
Fresno	2005	T6	GAS	45	3675.47757	452.0558736	452.055874	0.018%
Fresno	2005	T6	DSL	45	31700.62212	1069.553643	1069.55364	0.158%
Fresno	2005	T6	GAS	50	3576.99512	454.3217943	454.321794	0.018%
Fresno	2005	T6	DSL	50	35478.15139	1043.900377	1043.90038	0.176%
Fresno	2005	T6	GAS	55	4678.38379	482.4155587	482.415559	0.023%
Fresno	2005	T6	DSL	55	51990.01588	1031.906517	1031.90652	0.258%
Fresno	2005	T6	GAS	60	5398.64157	541.2092298	541.20923	0.027%
Fresno	2005	T6	DSL	60	62474.71663	1033.572061	1033.57206	0.311%
Fresno	2005	T6	GAS	65	843.606066	641.4979114	641.497911	0.004%
Fresno	2005	T6	DSL	65	9831.744097	1048.89701	1048.89701	0.049%
Fresno	2005	T7	GAS	5	18.76846249	2513.497347	2513.49735	0.000%
Fresno	2005	T7	DSL	5	6085.370392	4025.733112	4025.73311	0.030%
Fresno	2005	T7	GAS	10	91.73117308	2036.127866	2036.12787	0.000%
Fresno	2005	T7	DSL	10	23246.39627	3325.570158	3325.57016	0.116%
Fresno	2005	T7	GAS	15	100.034277	1392.429565	1392.42957	0.000%
Fresno	2005	T7	DSL	15	28430.53281	2730.581376	2730.58138	0.141%
Fresno	2005	T7	GAS	20	170.9568883	1006.068425	1006.06843	0.001%
Fresno	2005	T7	DSL	20	70220.90117	2156.026899	2156.0269	0.349%
Fresno	2005	T7	GAS	25	223.1096354	768.012027	768.012027	0.001%
Fresno	2005	T7	DSL	25	64214.81804	2009.876716	2009.87672	0.319%
Fresno	2005	T7	GAS	30	407.4400111	619.433607	619.433607	0.002%
Fresno	2005	T7	DSL	30	108412.4915	1886.573218	1886.57322	0.539%
Fresno	2005	T7	GAS	35	724.6866805	527.8465816	527.846582	0.004%
Fresno	2005	T7	DSL	35	195036.7831	1784.246602	1784.2466	0.970%
Fresno	2005	T7	GAS	40	631.7265342	475.2333056	475.233306	0.003%
Fresno	2005	T7	DSL	40	184058.0666	1702.896867	1702.89687	0.915%
Fresno	2005	T7	GAS	45	668.4343308	452.0557651	452.055765	0.003%
Fresno	2005	T7	DSL	45	257693.2211	1642.524014	1642.52401	1.281%
Fresno	2005	T7	GAS	50	699.3715848	454.3217173	454.321717	0.003%
Fresno	2005	T7	DSL	50	267994.6167	1603.128043	1603.12804	1.332%
Fresno	2005	T7	GAS	55	1026.625606	482.4155395	482.415539	0.005%
Fresno	2005	T7	DSL	55	326803.0314	1584.708954	1584.70895	1.625%
Fresno	2005	T7	GAS	60	253.3729539	541.2091887	541.209189	0.001%
Fresno	2005	T7	DSL	60	99555.62045	1587.266747	1587.26675	0.495%
Fresno	2005	T7	GAS	65	135.80266	641.4978614	641.497861	0.001%
Fresno	2005	T7	DSL	65	54528.61248	1610.801421	1610.80142	0.271%
Fresno	2005	UBUS	GAS	5	112.3655482	2513.497178	2513.49718	0.001%
Fresno	2005	UBUS	DSL	5	259.736822	2627.453122	2627.45312	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	UBUS	GAS	10	403.3140682	2036.128273	2036.12827	0.002%
Fresno	2005	UBUS	DSL	10	932.274273	2627.453223	2627.45322	0.005%
Fresno	2005	UBUS	GAS	15	806.6280844	1392.429514	1392.42951	0.004%
Fresno	2005	UBUS	DSL	15	1864.54857	2627.453199	2627.4532	0.009%
Fresno	2005	UBUS	GAS	20	1064.467933	1006.06853	1006.06853	0.005%
Fresno	2005	UBUS	DSL	20	2460.55387	2627.453313	2627.45331	0.012%
Fresno	2005	UBUS	GAS	25	1603.164937	768.0121541	768.012154	0.008%
Fresno	2005	UBUS	DSL	25	3705.77074	2627.453153	2627.45315	0.018%
Fresno	2005	UBUS	GAS	30	2006.478844	619.4336943	619.433694	0.010%
Fresno	2005	UBUS	DSL	30	4638.04437	2627.453188	2627.45319	0.023%
Fresno	2005	UBUS	GAS	35	1966.340307	527.8465849	527.846585	0.010%
Fresno	2005	UBUS	DSL	35	4545.26272	2627.453585	2627.45358	0.023%
Fresno	2005	UBUS	GAS	40	1417.551931	475.2332242	475.233224	0.007%
Fresno	2005	UBUS	DSL	40	3276.71961	2627.453246	2627.45325	0.016%
Fresno	2005	UBUS	GAS	45	617.9537663	452.0558589	452.055859	0.003%
Fresno	2005	UBUS	DSL	45	1428.421313	2627.453287	2627.45329	0.007%
Fresno	2005	UBUS	GAS	50	313.9658901	454.3218054	454.321805	0.002%
Fresno	2005	UBUS	DSL	50	725.74291	2627.453219	2627.45322	0.004%
Fresno	2005	UBUS	GAS	55	389.2542268	482.4155339	482.415534	0.002%
Fresno	2005	UBUS	DSL	55	899.774456	2627.453379	2627.45338	0.004%
Fresno	2005	UBUS	GAS	60	637.1160815	541.2091431	541.209143	0.003%
Fresno	2005	UBUS	DSL	60	1472.715687	2627.453055	2627.45305	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide	0.504	Used average of 2004-2006 historical emission factors.
Methane	0.000031	
Nitrous oxide	0.000011	

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	2,381,886,000	2,610	600235	36.9	13.1	548,921
Commercial	2,716,941,342	7,503	684669	42.1	14.9	626,137
Industrial	0		0	0.0	0.0	0
Total	5,098,827,342		1,284,904	79.0	28.0	1,175,058

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	125,938,800	138	736,742	69.3	1.4	670,082
Commercial	145,931,942	403	853,702	80.3	1.6	776,459
Industrial	0		0	0.0	0.0	0
Total	271,870,742		1,590,444	149.5	3.0	1,446,540

Notes and Sources:

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Emission factors for carbon dioxide from: California Climate Action Registry (CCAR). Power/Utility Protocol (PUP). Years 2004-2006.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

- Per capita emission rates are from the year 2010 based on actual usage from PG&E. The electricity and natural gas usage for this year are calculated as the per capita rate multiplied by the projected population.

Community Greenhouse Gas Inventory

Offroad Equipment

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Year 2035	Emissions (tons/year)			Emissions MTCO2e
	Population	CO2	CH4	N2O	
Fresno County	1,301,000	896	0.0329	0.0081	815
Fresno	780,600	537	0	0	489
Percent Fresno/Fresno County	60.0%				

Other Equipment

Location	Year 2035	Emissions (tons/year)			Emissions MTCO2e
	Population	CO2	CH4	N2O	
Fresno County	1,301,000	1,468	0.384	0.12457	1,375
Fresno	780,600	881	0	0	825
Percent Fresno/Fresno County	60.0%				

Total Fresno 1,314

Notes:

*OFFROAD only provides emissions rates up to 2040. Emissions for Fresno County are from OFFROAD2007 for the year 2035; emissions from Fresno are apportioned based on population.

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

2020 Emissions (MTCO ₂ e per person)*	0.89
--	------

Fresno

Population	912,600
Emissions (MTCO ₂ e per person)	812,214
(estimated by using 2020 California per person emissions)	

Sources/Notes:

* 2020 California per capita emissions rate.

Community Greenhouse Gas Inventory

Summary

Year: 2056

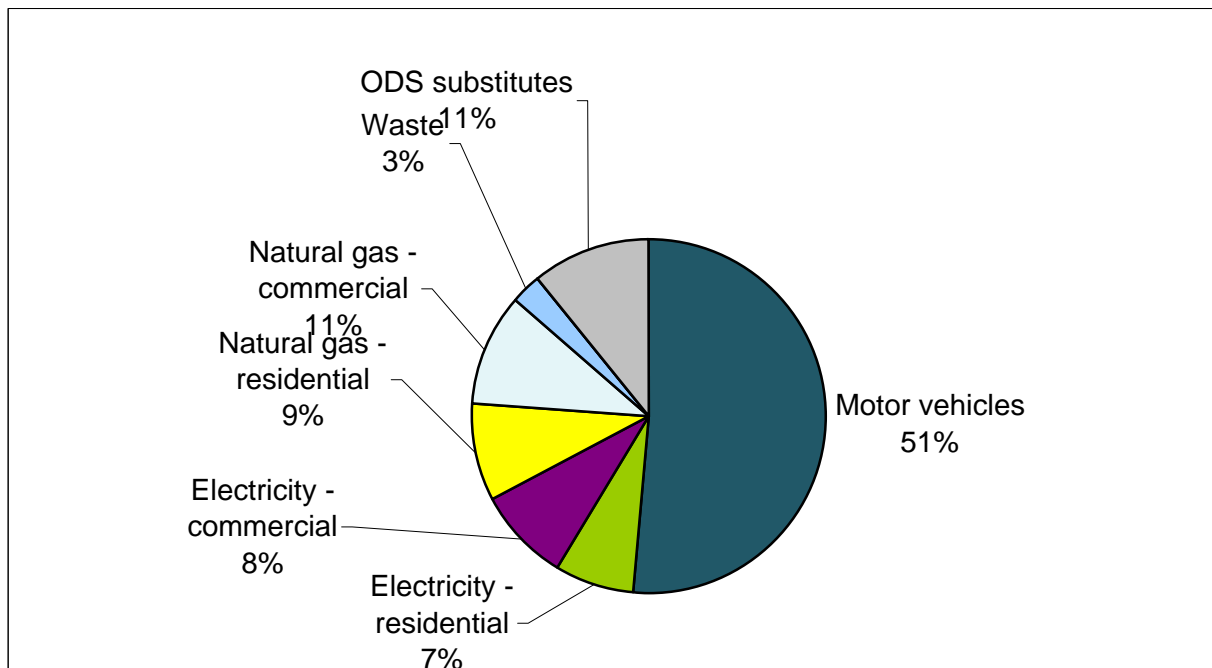
Prepared by FirstCarbon Solutions

	Data	Source
City Information		
Population	970,000	Fresno COG
Employment	393,200	
County Information		
Population	1,616,667	Fresno COG

-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050. Produced under contract by: The Planning Center|DC&E. March 2012.

-Employment: Took the 2010 population (545,000) and 2010 employment (183,825) and cross multiplied with the 2056 population and the 2056 employment number (X).

Emissions (MTCO₂e/year)	Without Regulation	With Pavley I and LCFS
Motor vehicles	4,122,629	4,122,629
Electricity - residential	583,447	
Electricity - commercial	679,888	
Natural gas - residential	712,228	
Natural gas - commercial	843,115	
Waste	220,578	
Offroad equipment	1,314	
ODS substitutes	863,300	
<u>Total</u>	<u>8,026,498</u>	



Community Greenhouse Gas Inventory

Waste

Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Emissions

Emissions (MTCO ₂ e)*	220,578	
Emissions (MTCO ₂ e/person)	0.2274	2010 waste emissions per person

Notes:

*Emissions were calculated by multiplying the 2010 per capita rate by the population for this year.

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without Pavley I and LCFS)
Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **19,883,447** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 7,257,458,155 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,384	0	1,384	5
5 - 10 MPH	1,150	1,345	0	2,496	5
10 - 15 MPH	224,212	289,426	615,535	1,129,173	10
15 - 20 MPH	7,576	11,210	11,842	30,628	15
20 - 25 MPH	33,152	55,414	94,472	183,038	20
25 - 30 MPH	135,406	179,299	389,591	704,296	25
30 - 35 MPH	150,069	237,489	296,661	684,218	30
35 - 40 MPH	884,009	1,145,409	2,308,049	4,337,467	35
40 - 45 MPH	395,330	482,401	1,059,730	1,937,461	40
45 - 50 MPH	336,301	443,145	1,305,167	2,084,613	45
50 - 55 MPH	181,888	256,936	618,473	1,057,297	50
55 - 60 MPH	807,301	959,882	2,270,362	4,037,545	55
60 - 65 MPH	773,934	961,421	1,958,222	3,693,577	60
65 - 70 MPH	43	56	154	254	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	3,930,371	5,024,819	10,928,257	19,883,447	

Source:
 Fehr and Peers. 2013. 2056 VMT was found by multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 46 years of VMT growth between 2010 and 2056 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $(((2056 \text{ VMT} - 2010 \text{ VMT}) / 45 \text{ years}) = .0254)$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	3880	1129173	30628	183038	704296	684218	4337467	1937461	2084613	1057297	4037545	3693577	254	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	40.99%	0.11%	GAS Heavy duty 0.5% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	5.72%	0.01%	Light trucks 44.8% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.28%	0.01%	Passenger 41.5% LDA, MCY
LHD1	2.71%	1.95%	DSL Heavy duty 10.6% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.30%	0.46%	Light trucks 2.4% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.56%	0.00%	Passenger 0.1% LDA, MCY
MDV	19.74%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.10%	0.14%	
SBUS	0.02%	0.09%	
T6	0.18%	1.83%	
T7	0.03%	8.38%	
UBUS	0.06%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1118	835	645	511	424	365	326	302	291	290	301	324	362	388	0
LDT1		1277	953	736	584	484	417	372	345	332	332	344	370	413	443	0
LDT2		1541	1151	889	704	584	503	450	416	401	400	415	446	498	534	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		222	204	176	154	137	124	114	107	101	98	97	97	99	104	0
MDV		1916	1431	1105	875	726	625	559	517	498	497	516	555	620	664	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without Pavley I and LCFS)
Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		363	363	363	363	363	363	363	363	363	363	363	363	363	363	0
LDT1		373	373	373	373	373	373	373	373	373	373	373	373	373	373	0
LDT2		371	371	371	371	371	371	371	371	371	371	371	371	371	371	0
LHD1		533	533	533	533	533	533	533	533	533	533	533	0	0	0	0
LHD2		535	535	535	535	535	535	535	535	535	535	535	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		369	369	369	369	369	369	369	369	369	369	369	369	369	369	0
MH		2381	2162	1775	1457	1307	1226	1160	1107	1068	1042	1030	1032	1047	0	0
OBUS		3085	2487	2025	1711	1595	1551	1530	1421	1443	1399	1360	1188	1365	0	0
SBUS		2650	2189	1798	1418	1323	1242	1175	1121	1081	1055	1043	1045	0	0	0
T6		2621	2165	1778	1403	1309	1228	1162	1109	1070	1044	1032	1034	1049	0	0
T7		4026	3326	2731	2156	2010	1887	1784	1703	1643	1603	1585	1587	1611	0	0
UBUS		2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1590	462862	12555	75029	288699	280469	1777980	794189	854508	433399	1655038	1514041	104	0	0
LDT1		222	64643	1753	10479	40320	39170	248313	110917	119341	60529	231143	211452	15	0	0
LDT2		632	183782	4985	29791	114630	111362	705959	315338	339288	172084	657144	601160	41	0	0
LHD1		105	30648	831	4968	19116	18571	117729	52587	56581	28697	109588	100252	7	0	0
LHD2		12	3398	92	551	2119	2059	13051	5830	6272	3181	12149	11114	1	0	0
MCY		22	6273	170	1017	3913	3801	24098	10764	11581	5874	22431	20520	1	0	0
MDV		766	222915	6046	36134	139038	135074	856277	382482	411532	208725	797068	729164	50	0	0
MH		6	1746	47	283	1089	1058	6706	2995	3223	1635	6242	5710	0	0	0
OBUS		4	1165	32	189	727	706	4476	1999	2151	1091	4166	3811	0	0	0
SBUS		1	248	7	40	155	150	952	425	458	232	886	811	0	0	0
T6		7	2038	55	330	1271	1235	7829	3497	3763	1908	7287	6667	0	0	0
T7		1	289	8	47	180	175	1111	496	534	271	1034	946	0	0	0
UBUS		2	637	17	103	397	386	2445	1092	1175	596	2276	2082	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		4	1254	34	203	782	760	4818	2152	2315	1174	4485	4103	0	0	0
LDT1		0	98	3	16	61	60	378	169	182	92	352	322	0	0	0
LDT2		0	86	2	14	54	52	331	148	159	81	308	282	0	0	0
LHD1		76	21987	596	3564	13714	13323	84459	37726	40592	20588	78619	71921	5	0	0
LHD2		18	5247	142	851	3273	3180	20157	9004	9687	4913	18763	17164	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	101	3	16	63	61	388	173	187	95	361	331	0	0	0
MH		1	312	8	51	195	189	1200	536	577	293	1117	1022	0	0	0
OBUS		6	1603	43	260	1000	971	6156	2750	2959	1501	5731	5242	0	0	0
SBUS		3	1011	27	164	630	612	3882	1734	1866	946	3614	3306	0	0	0
T6		71	20691	561	3354	12906	12538	79481	35503	38199	19374	73985	67682	5	0	0
T7		325	94666	2568	15345	59046	57363	363639	162430	174767	88640	338494	309657	21	0	0
UBUS		5	1471	40	239	918	892	5652	2525	2716	1378	5261	4813	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		714	155,159	3,251	15,388	49,127	41,078	232,800	96,271	99,700	50,514	200,001	196,731	15	0	0	1,140,034
LDT1		114	24,733	518	2,455	7,837	6,553	37,135	15,361	15,907	8,059	31,909	31,391	2	0	0	181,861
LDT2		391	84,909	1,779	8,422	26,889	22,484	127,418	52,695	54,572	27,649	109,471	107,684	8	0	0	623,981
LHD1		106	25,055	465	2,007	5,895	4,619	24,950	10,034	10,270	5,235	21,226	0	0	0	0	109,755

Community Greenhouse Gas Inventory

Motor Vehicle Emissions (without Pavley I and LCFS)

Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	12	2,778	52	222	653	512	2,766	1,112	1,138	580	2,353	0	0	0	0	12,167
MCY	2	515	12	63	215	189	1,103	461	471	231	870	798	0	0	0	4,928
MDV	589	128,049	2,683	12,699	40,542	33,899	192,120	79,448	82,278	41,687	165,051	162,351	12	0	0	940,817
MH	6	1,427	26	114	336	263	1,421	572	585	298	1,209	1,241	0	0	0	7,493
OBUS	4	953	18	76	224	176	949	381	390	199	807	828	0	0	0	5,001
SBUS	1	203	4	16	48	37	202	81	83	42	172	176	0	0	0	1,064
T6	7	1,666	31	133	392	307	1,659	667	683	348	1,411	1,449	0	0	0	8,747
T7	1	236	4	19	56	44	235	95	97	49	200	206	0	0	0	1,241
UBUS	2	520	10	42	122	96	518	208	213	109	441	452	0	0	0	2,732
Total	1,949	426,203	8,851	41,657	132,336	110,256	623,277	257,386	266,388	135,002	535,121	503,306	39	0	0	3,041,772
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	183	5	30	114	111	702	314	337	171	653	598	0	0	0	3,217
LDT1	0	15	0	2	9	9	57	25	27	14	53	48	0	0	0	260
LDT2	0	13	0	2	8	8	49	22	24	12	46	42	0	0	0	226
LHD1	16	4,702	128	762	2,932	2,849	18,060	8,067	8,680	4,402	16,811	0	0	0	0	67,393
LHD2	4	1,127	31	183	703	683	4,328	1,933	2,080	1,055	4,029	0	0	0	0	16,151
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	15	0	2	9	9	58	26	28	14	54	49	0	0	0	264
MH	1	271	6	30	102	93	559	238	247	122	462	423	0	0	0	2,555
OBUS	7	1,600	35	178	640	605	3,782	1,569	1,715	843	3,129	2,501	0	0	0	16,597
SBUS	4	888	20	93	335	305	1,831	780	810	401	1,514	1,387	0	0	0	8,364
T6	75	17,990	401	1,889	6,782	6,184	37,076	15,806	16,404	8,120	30,653	28,087	2	0	0	169,393
T7	526	126,400	2,815	13,284	47,648	43,450	260,502	111,056	115,254	57,054	215,371	197,341	14	0	0	1,190,187
UBUS	5	1,552	42	252	968	941	5,962	2,663	2,866	1,453	5,550	5,077	0	0	0	27,327
Total	638	154,755	3,483	16,707	60,251	55,246	332,966	142,500	148,471	73,662	278,324	235,553	16	0	0	1,502,572

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	4,544,344	4,122,629	4,122,629

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **19,883,447** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 7,257,458,155 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,384	0	1,384	5
5 - 10 MPH	1,150	1,345	0	2,496	5
10 - 15 MPH	224,212	289,426	615,535	1,129,173	10
15 - 20 MPH	7,576	11,210	11,842	30,628	15
20 - 25 MPH	33,152	55,414	94,472	183,038	20
25 - 30 MPH	135,406	179,299	389,591	704,296	25
30 - 35 MPH	150,069	237,489	296,661	684,218	30
35 - 40 MPH	884,009	1,145,409	2,308,049	4,337,467	35
40 - 45 MPH	395,330	482,401	1,059,730	1,937,461	40
45 - 50 MPH	336,301	443,145	1,305,167	2,084,613	45
50 - 55 MPH	181,888	256,936	618,473	1,057,297	50
55 - 60 MPH	807,301	959,882	2,270,362	4,037,545	55
60 - 65 MPH	773,934	961,421	1,958,222	3,693,577	60
65 - 70 MPH	43	56	154	254	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	3,930,371	5,024,819	10,928,257	19,883,447	

Source:
 Fehr and Peers. 2013. 2056 VMT was found by multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 46 years of VMT growth between 2010 and 2056 and adding that to the 2010 VMT.
 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $[(2056 \text{ VMT} - 2010 \text{ VMT}) / 45 \text{ years} = .0254]$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	3880	1129173	30628	183038	704296	684218	4337467	1937461	2084613	1057297	4037545	3693577	254	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	40.99%	0.11%	GAS Heavy duty 0.5% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	5.72%	0.01%	Light trucks 44.8% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.28%	0.01%	Passenger 41.5% LDA, MCY
LHD1	2.71%	1.95%	DSL Heavy duty 10.6% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.30%	0.46%	Light trucks 2.4% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.56%	0.00%	Passenger 0.1% LDA, MCY
MDV	19.74%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.10%	0.14%	
SBUS	0.02%	0.09%	
T6	0.18%	1.83%	
T7	0.03%	8.38%	
UBUS	0.06%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1118	835	645	511	424	365	326	302	291	290	301	324	362	388	0
LDT1		1277	953	736	584	484	417	372	345	332	332	344	370	413	443	0
LDT2		1541	1151	889	704	584	503	450	416	401	400	415	446	498	534	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		222	204	176	154	137	124	114	107	101	98	97	97	99	104	0
MDV		1916	1431	1105	875	726	625	559	517	498	497	516	555	620	664	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		363	363	363	363	363	363	363	363	363	363	363	363	363	363	0
LDT1		373	373	373	373	373	373	373	373	373	373	373	373	373	373	0
LDT2		371	371	371	371	371	371	371	371	371	371	371	371	371	371	0
LHD1		533	533	533	533	533	533	533	533	533	533	533	0	0	0	0
LHD2		535	535	535	535	535	535	535	535	535	535	535	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		369	369	369	369	369	369	369	369	369	369	369	369	369	369	0
MH		2381	2162	1775	1457	1307	1226	1160	1107	1068	1042	1030	1032	1047	0	0
OBUS		3085	2487	2025	1711	1595	1551	1530	1421	1443	1399	1360	1188	1365	0	0
SBUS		2650	2189	1798	1418	1323	1242	1175	1121	1081	1055	1043	1045	0	0	0
T6		2621	2165	1778	1403	1309	1228	1162	1109	1070	1044	1032	1034	1049	0	0
T7		4026	3326	2731	2156	2010	1887	1784	1703	1643	1603	1585	1587	1611	0	0
UBUS		2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	2627	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1590	462862	12555	75029	288699	280469	1777980	794189	854508	433399	1655038	1514041	104	0	0
LDT1		222	64643	1753	10479	40320	39170	248313	110917	119341	60529	231143	211452	15	0	0
LDT2		632	183782	4985	29791	114630	111362	705959	315338	339288	172084	657144	601160	41	0	0
LHD1		105	30648	831	4968	19116	18571	117729	52587	56581	28697	109588	100252	7	0	0
LHD2		12	3398	92	551	2119	2059	13051	5830	6272	3181	12149	11114	1	0	0
MCY		22	6273	170	1017	3913	3801	24098	10764	11581	5874	22431	20520	1	0	0
MDV		766	222915	6046	36134	139038	135074	856277	382482	411532	208725	797068	729164	50	0	0
MH		6	1746	47	283	1089	1058	6706	2995	3223	1635	6242	5710	0	0	0
OBUS		4	1165	32	189	727	706	4476	1999	2151	1091	4166	3811	0	0	0
SBUS		1	248	7	40	155	150	952	425	458	232	886	811	0	0	0
T6		7	2038	55	330	1271	1235	7829	3497	3763	1908	7287	6667	0	0	0
T7		1	289	8	47	180	175	1111	496	534	271	1034	946	0	0	0
UBUS		2	637	17	103	397	386	2445	1092	1175	596	2276	2082	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		4	1254	34	203	782	760	4818	2152	2315	1174	4485	4103	0	0	0
LDT1		0	98	3	16	61	60	378	169	182	92	352	322	0	0	0
LDT2		0	86	2	14	54	52	331	148	159	81	308	282	0	0	0
LHD1		76	21987	596	3564	13714	13323	84459	37726	40592	20588	78619	71921	5	0	0
LHD2		18	5247	142	851	3273	3180	20157	9004	9687	4913	18763	17164	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	101	3	16	63	61	388	173	187	95	361	331	0	0	0
MH		1	312	8	51	195	189	1200	536	577	293	1117	1022	0	0	0
OBUS		6	1603	43	260	1000	971	6156	2750	2959	1501	5731	5242	0	0	0
SBUS		3	1011	27	164	630	612	3882	1734	1866	946	3614	3306	0	0	0
T6		71	20691	561	3354	12906	12538	79481	35503	38199	19374	73985	67682	5	0	0
T7		325	94666	2568	15345	59046	57363	363639	162430	174767	88640	338494	309657	21	0	0
UBUS		5	1471	40	239	918	892	5652	2525	2716	1378	5261	4813	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		714	155,159	3,251	15,388	49,127	41,078	232,800	96,271	99,700	50,514	200,001	196,731	15	0	0	1,140,034
LDT1		114	24,733	518	2,455	7,837	6,553	37,135	15,361	15,907	8,059	31,909	31,391	2	0	0	181,861
LDT2		391	84,909	1,779	8,422	26,889	22,484	127,418	52,695	54,572	27,649	109,471	107,684	8	0	0	623,981
LHD1		106	25,055	465	2,007	5,895	4,619	24,950	10,034	10,270	5,235	21,226	0	0	0	0	109,755

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	12	2,778	52	222	653	512	2,766	1,112	1,138	580	2,353	0	0	0	0	12,167
MCY	2	515	12	63	215	189	1,103	461	471	231	870	798	0	0	0	4,928
MDV	589	128,049	2,683	12,699	40,542	33,899	192,120	79,448	82,278	41,687	165,051	162,351	12	0	0	940,817
MH	6	1,427	26	114	336	263	1,421	572	585	298	1,209	1,241	0	0	0	7,493
OBUS	4	953	18	76	224	176	949	381	390	199	807	828	0	0	0	5,001
SBUS	1	203	4	16	48	37	202	81	83	42	172	176	0	0	0	1,064
T6	7	1,666	31	133	392	307	1,659	667	683	348	1,411	1,449	0	0	0	8,747
T7	1	236	4	19	56	44	235	95	97	49	200	206	0	0	0	1,241
UBUS	2	520	10	42	122	96	518	208	213	109	441	452	0	0	0	2,732
Total	1,949	426,203	8,851	41,657	132,336	110,256	623,277	257,386	266,388	135,002	535,121	503,306	39	0	0	3,041,772
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	183	5	30	114	111	702	314	337	171	653	598	0	0	0	3,217
LDT1	0	15	0	2	9	9	57	25	27	14	53	48	0	0	0	260
LDT2	0	13	0	2	8	8	49	22	24	12	46	42	0	0	0	226
LHD1	16	4,702	128	762	2,932	2,849	18,060	8,067	8,680	4,402	16,811	0	0	0	0	67,393
LHD2	4	1,127	31	183	703	683	4,328	1,933	2,080	1,055	4,029	0	0	0	0	16,151
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	15	0	2	9	9	58	26	28	14	54	49	0	0	0	264
MH	1	271	6	30	102	93	559	238	247	122	462	423	0	0	0	2,555
OBUS	7	1,600	35	178	640	605	3,782	1,569	1,715	843	3,129	2,501	0	0	0	16,597
SBUS	4	888	20	93	335	305	1,831	780	810	401	1,514	1,387	0	0	0	8,364
T6	75	17,990	401	1,889	6,782	6,184	37,076	15,806	16,404	8,120	30,653	28,087	2	0	0	169,393
T7	526	126,400	2,815	13,284	47,648	43,450	260,502	111,056	115,254	57,054	215,371	197,341	14	0	0	1,190,187
UBUS	5	1,552	42	252	968	941	5,962	2,663	2,866	1,453	5,550	5,077	0	0	0	27,327
Total	638	154,755	3,483	16,707	60,251	55,246	332,966	142,500	148,471	73,662	278,324	235,553	16	0	0	1,502,572

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	4,544,344	4,122,629	4,122,629

EMFAC 2011
 2005 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter: region - County: Fresno, year - 2005, season - annual average, vehicle category - EMFAC2007, model year - aggregated, speed - all speeds, fuel - all) Website: <http://www.arb.ca.gov/emfac/>
 2005 Emission Rates will be used for BAU calculations.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa) (gms/mile)	Percent of Total VMT
Fresno	2005	LDA	GAS	5	574.3459975	1117.902588	1117.90259	0.003%
Fresno	2005	LDA	DSL	5	1.55629378	362.9037298	362.90373	0.000%
Fresno	2005	LDA	GAS	10	1560.70567	834.9088117	834.908812	0.008%
Fresno	2005	LDA	DSL	10	4.229012934	362.9037176	362.903718	0.000%
Fresno	2005	LDA	GAS	15	1481.313242	644.9016731	644.901673	0.007%
Fresno	2005	LDA	DSL	15	4.013884191	362.9037424	362.903742	0.000%
Fresno	2005	LDA	GAS	20	384673.2535	510.8041631	510.804163	1.912%
Fresno	2005	LDA	DSL	20	1042.341227	362.903737	362.903737	0.005%
Fresno	2005	LDA	GAS	25	46631.55871	423.823398	423.823398	0.232%
Fresno	2005	LDA	DSL	25	126.3565868	362.903733	362.903733	0.001%
Fresno	2005	LDA	GAS	30	142960.6643	364.7820036	364.782004	0.711%
Fresno	2005	LDA	DSL	30	387.3776096	362.9037333	362.903733	0.002%
Fresno	2005	LDA	GAS	35	556848.446	326.1153018	326.115302	2.768%
Fresno	2005	LDA	DSL	35	1508.880862	362.9037744	362.903774	0.008%
Fresno	2005	LDA	GAS	40	1045053.417	301.9173486	301.917349	5.196%
Fresno	2005	LDA	DSL	40	2831.760101	362.9037532	362.903753	0.014%
Fresno	2005	LDA	GAS	45	898804.646	290.6000061	290.600006	4.469%
Fresno	2005	LDA	DSL	45	2435.472726	362.9037268	362.903727	0.012%
Fresno	2005	LDA	GAS	50	1236247.625	290.295843	290.295843	6.146%
Fresno	2005	LDA	DSL	50	3349.835262	362.9037543	362.903754	0.017%
Fresno	2005	LDA	GAS	55	881689.2606	300.9810314	300.981031	4.383%
Fresno	2005	LDA	DSL	55	2389.095509	362.90373	362.90373	0.012%
Fresno	2005	LDA	GAS	60	1065707.872	323.6299465	323.629947	5.298%
Fresno	2005	LDA	DSL	60	2887.727003	362.9037118	362.903712	0.014%
Fresno	2005	LDA	GAS	65	1052205.277	361.6105735	361.610573	5.231%
Fresno	2005	LDA	DSL	65	2851.139136	362.903729	362.903729	0.014%
Fresno	2005	LDA	GAS	70	930481.937	387.59416	387.59416	4.626%
Fresno	2005	LDA	DSL	70	2521.30786	362.9037511	362.903751	0.013%
Fresno	2005	LDT1	GAS	5	80.2134059	1277.383889	1277.38389	0.000%
Fresno	2005	LDT1	DSL	5	0.122139063	373.2062411	373.206241	0.000%
Fresno	2005	LDT1	GAS	10	217.9688072	952.9532874	952.953287	0.001%
Fresno	2005	LDT1	DSL	10	0.331895978	373.2062264	373.206226	0.000%
Fresno	2005	LDT1	GAS	15	206.8808052	735.6841431	735.684143	0.001%
Fresno	2005	LDT1	DSL	15	0.315012523	373.2062425	373.206242	0.000%
Fresno	2005	LDT1	GAS	20	53723.62363	583.5347772	583.534777	0.267%
Fresno	2005	LDT1	DSL	20	81.803698	373.206226	373.206226	0.000%
Fresno	2005	LDT1	GAS	25	6512.582938	484.1298404	484.12984	0.032%
Fresno	2005	LDT1	DSL	25	9.916557	373.2062055	373.206206	0.000%
Fresno	2005	LDT1	GAS	30	19965.94701	416.6904394	416.690439	0.099%
Fresno	2005	LDT1	DSL	30	30.4016764	373.2062064	373.206206	0.000%
Fresno	2005	LDT1	GAS	35	77769.69216	372.4778067	372.477807	0.387%
Fresno	2005	LDT1	DSL	35	118.418068	373.2062534	373.206253	0.001%
Fresno	2005	LDT1	GAS	40	145952.6125	344.9252398	344.92524	0.726%
Fresno	2005	LDT1	DSL	40	222.238591	373.2062401	373.20624	0.001%
Fresno	2005	LDT1	GAS	45	125527.4358	331.9868346	331.986835	0.624%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	LDT1	DSL	45	191.137656	373.2062577	373.206258	0.001%
Fresno	2005	LDT1	GAS	50	172654.8816	331.6326825	331.632682	0.858%
Fresno	2005	LDT1	DSL	50	262.897513	373.2062113	373.206211	0.001%
Fresno	2005	LDT1	GAS	55	123137.0906	343.8328444	343.832844	0.612%
Fresno	2005	LDT1	DSL	55	187.497965	373.2061963	373.206196	0.001%
Fresno	2005	LDT1	GAS	60	148837.2054	369.7469417	369.746942	0.740%
Fresno	2005	LDT1	DSL	60	226.630859	373.206311	373.206311	0.001%
Fresno	2005	LDT1	GAS	65	146951.4277	413.1036658	413.103666	0.731%
Fresno	2005	LDT1	DSL	65	223.759469	373.2062322	373.206232	0.001%
Fresno	2005	LDT1	GAS	70	129951.4999	442.7709544	442.770954	0.646%
Fresno	2005	LDT1	DSL	70	197.874089	373.2062236	373.206224	0.001%
Fresno	2005	LDT2	GAS	5	228.0478692	1541.14964	1541.14964	0.001%
Fresno	2005	LDT2	DSL	5	0.107040842	371.0954996	371.0955	0.000%
Fresno	2005	LDT2	GAS	10	619.688516	1150.709694	1150.70969	0.003%
Fresno	2005	LDT2	DSL	10	0.290868673	371.095504	371.095504	0.000%
Fresno	2005	LDT2	GAS	15	588.1651566	888.7202414	888.720241	0.003%
Fresno	2005	LDT2	DSL	15	0.276072268	371.0954901	371.09549	0.000%
Fresno	2005	LDT2	GAS	20	152737.0474	704.1586177	704.158618	0.759%
Fresno	2005	LDT2	DSL	20	71.691539	371.0954812	371.095481	0.000%
Fresno	2005	LDT2	GAS	25	18515.36584	584.2418904	584.24189	0.092%
Fresno	2005	LDT2	DSL	25	8.6907219	371.095481	371.095481	0.000%
Fresno	2005	LDT2	GAS	30	56763.47295	502.8540511	502.854051	0.282%
Fresno	2005	LDT2	DSL	30	26.6435743	371.0954791	371.095479	0.000%
Fresno	2005	LDT2	GAS	35	221100.3455	449.539312	449.539312	1.099%
Fresno	2005	LDT2	DSL	35	103.779821	371.0955143	371.095514	0.001%
Fresno	2005	LDT2	GAS	40	414945.4046	416.2074653	416.207465	2.063%
Fresno	2005	LDT2	DSL	40	194.766579	371.0954985	371.095498	0.001%
Fresno	2005	LDT2	GAS	45	356876.2901	400.603499	400.603499	1.774%
Fresno	2005	LDT2	DSL	45	167.510172	371.0955097	371.09551	0.001%
Fresno	2005	LDT2	GAS	50	490860.2714	400.1823445	400.182345	2.440%
Fresno	2005	LDT2	DSL	50	230.399436	371.09548	371.09548	0.001%
Fresno	2005	LDT2	GAS	55	350080.5216	414.9103501	414.91035	1.740%
Fresno	2005	LDT2	DSL	55	164.320381	371.0955152	371.095515	0.001%
Fresno	2005	LDT2	GAS	60	423146.3014	446.1440566	446.144057	2.104%
Fresno	2005	LDT2	DSL	60	198.615926	371.0954932	371.095493	0.001%
Fresno	2005	LDT2	GAS	65	417785.0125	498.4924137	498.492414	2.077%
Fresno	2005	LDT2	DSL	65	196.099447	371.0954901	371.09549	0.001%
Fresno	2005	LDT2	GAS	70	369453.9847	534.3069769	534.306977	1.837%
Fresno	2005	LDT2	DSL	70	173.41387	371.0955028	371.095503	0.001%
Fresno	2005	LHD1	GAS	5	15493.27829	2513.497349	2513.49735	0.077%
Fresno	2005	LHD1	DSL	5	6887.103617	532.5794	532.5794	0.034%
Fresno	2005	LHD1	GAS	10	40399.97733	2036.128182	2036.12818	0.201%
Fresno	2005	LHD1	DSL	10	22902.76288	532.5792393	532.579239	0.114%
Fresno	2005	LHD1	GAS	15	91996.19282	1392.429536	1392.42954	0.457%
Fresno	2005	LHD1	DSL	15	49600.82188	532.5792921	532.579292	0.247%
Fresno	2005	LHD1	GAS	20	106300.888	1006.068544	1006.06854	0.528%
Fresno	2005	LHD1	DSL	20	54378.52199	532.5792617	532.579262	0.270%
Fresno	2005	LHD1	GAS	25	81884.45437	768.0121288	768.012129	0.407%
Fresno	2005	LHD1	DSL	25	58199.51987	532.5793513	532.579351	0.289%
Fresno	2005	LHD1	GAS	30	72412.73099	619.4335923	619.433592	0.360%
Fresno	2005	LHD1	DSL	30	49127.77262	532.5792941	532.579294	0.244%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	LHD1	GAS	35	27058.00658	527.8465902	527.84659	0.135%
Fresno	2005	LHD1	DSL	35	25926.63204	532.579317	532.579317	0.129%
Fresno	2005	LHD1	GAS	40	7986.90704	475.2331456	475.233146	0.040%
Fresno	2005	LHD1	DSL	40	14232.8744	532.5792642	532.579264	0.071%
Fresno	2005	LHD1	GAS	45	9832.585266	452.0558438	452.055844	0.049%
Fresno	2005	LHD1	DSL	45	15361.95268	532.5792928	532.579293	0.076%
Fresno	2005	LHD1	GAS	50	72602.43931	454.3217938	454.321794	0.361%
Fresno	2005	LHD1	DSL	50	59317.36357	532.5793236	532.579324	0.295%
Fresno	2005	LHD1	GAS	55	19969.09783	482.4155587	482.415559	0.099%
Fresno	2005	LHD1	DSL	55	35721.45554	532.5792563	532.579256	0.178%
Fresno	2005	LHD2	GAS	5	1717.546588	2513.497194	2513.49719	0.009%
Fresno	2005	LHD2	DSL	5	1643.654028	534.8240705	534.824071	0.008%
Fresno	2005	LHD2	GAS	10	4478.641561	2036.128258	2036.12826	0.022%
Fresno	2005	LHD2	DSL	10	5465.899708	534.8239928	534.823993	0.027%
Fresno	2005	LHD2	GAS	15	10198.47067	1392.429599	1392.4296	0.051%
Fresno	2005	LHD2	DSL	15	11837.57275	534.8239985	534.823999	0.059%
Fresno	2005	LHD2	GAS	20	11784.25424	1006.068517	1006.06852	0.059%
Fresno	2005	LHD2	DSL	20	12977.80233	534.8240078	534.824008	0.065%
Fresno	2005	LHD2	GAS	25	9077.508294	768.0121044	768.012104	0.045%
Fresno	2005	LHD2	DSL	25	13889.71073	534.8240484	534.824048	0.069%
Fresno	2005	LHD2	GAS	30	8027.49616	619.4336218	619.433622	0.040%
Fresno	2005	LHD2	DSL	30	11724.67582	534.824037	534.824037	0.058%
Fresno	2005	LHD2	GAS	35	2999.584099	527.846466	527.846466	0.015%
Fresno	2005	LHD2	DSL	35	6187.566882	534.8240546	534.824055	0.031%
Fresno	2005	LHD2	GAS	40	885.4087913	475.2331522	475.233152	0.004%
Fresno	2005	LHD2	DSL	40	3396.771437	534.8241463	534.824146	0.017%
Fresno	2005	LHD2	GAS	45	1090.016138	452.0558109	452.055811	0.005%
Fresno	2005	LHD2	DSL	45	3666.233792	534.824068	534.824068	0.018%
Fresno	2005	LHD2	GAS	50	8048.527309	454.3218106	454.321811	0.040%
Fresno	2005	LHD2	DSL	50	14156.48996	534.8240631	534.824063	0.070%
Fresno	2005	LHD2	GAS	55	2213.724954	482.415483	482.415483	0.011%
Fresno	2005	LHD2	DSL	55	8525.166441	534.8240334	534.824033	0.042%
Fresno	2005	MCY	GAS	5	7.7843384	221.6010944	221.601094	0.000%
Fresno	2005	MCY	GAS	10	21.1528613	204.3809145	204.380914	0.000%
Fresno	2005	MCY	GAS	15	20.07682252	176.0040917	176.004092	0.000%
Fresno	2005	MCY	GAS	20	5213.628487	154.0664735	154.066474	0.026%
Fresno	2005	MCY	GAS	25	632.0158685	137.0847399	137.08474	0.003%
Fresno	2005	MCY	GAS	30	1937.602297	123.9888015	123.988801	0.010%
Fresno	2005	MCY	GAS	35	7547.186875	114.0069527	114.006953	0.038%
Fresno	2005	MCY	GAS	40	14164.02356	106.5882594	106.588259	0.070%
Fresno	2005	MCY	GAS	45	12181.85384	101.351138	101.351138	0.061%
Fresno	2005	MCY	GAS	50	16755.35397	98.0507808	98.0507808	0.083%
Fresno	2005	MCY	GAS	55	11949.88349	96.5621063	96.5621063	0.059%
Fresno	2005	MCY	GAS	60	14443.95889	96.87654461	96.8765446	0.072%
Fresno	2005	MCY	GAS	65	14260.95394	99.1149102	99.1149102	0.071%
Fresno	2005	MCY	GAS	70	12611.18911	103.5614952	103.561495	0.063%
Fresno	2005	MDV	GAS	5	276.6057878	1915.561564	1915.56156	0.001%
Fresno	2005	MDV	DSL	5	0.125445122	369.0636663	369.063666	0.000%
Fresno	2005	MDV	GAS	10	751.6379153	1430.71487	1430.71487	0.004%
Fresno	2005	MDV	DSL	10	0.34087976	369.0636324	369.063632	0.000%
Fresno	2005	MDV	GAS	15	713.402331	1105.142376	1105.14238	0.004%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	MDV	DSL	15	0.323539357	369.0636164	369.063616	0.000%
Fresno	2005	MDV	GAS	20	185259.1327	875.2888262	875.288826	0.921%
Fresno	2005	MDV	DSL	20	84.01796496	369.0636582	369.063658	0.000%
Fresno	2005	MDV	GAS	25	22457.81699	726.2455563	726.245556	0.112%
Fresno	2005	MDV	DSL	25	10.18497853	369.0636516	369.063652	0.000%
Fresno	2005	MDV	GAS	30	68850.04116	625.0744431	625.074443	0.342%
Fresno	2005	MDV	DSL	30	31.22459012	369.0636522	369.063652	0.000%
Fresno	2005	MDV	GAS	35	268178.9233	558.8198391	558.819839	1.333%
Fresno	2005	MDV	DSL	35	121.6234022	369.0637076	369.063708	0.001%
Fresno	2005	MDV	GAS	40	503299.0839	517.3492783	517.349278	2.502%
Fresno	2005	MDV	DSL	40	228.2541587	369.0636653	369.063665	0.001%
Fresno	2005	MDV	GAS	45	432865.4758	497.9571493	497.957149	2.152%
Fresno	2005	MDV	DSL	45	196.3113735	369.0636861	369.063686	0.001%
Fresno	2005	MDV	GAS	50	595378.4851	497.4363565	497.436356	2.960%
Fresno	2005	MDV	DSL	50	270.0136082	369.0636733	369.063673	0.001%
Fresno	2005	MDV	GAS	55	424622.6866	515.7464096	515.74641	2.111%
Fresno	2005	MDV	DSL	55	192.5731227	369.0637145	369.063714	0.001%
Fresno	2005	MDV	GAS	60	513246.2809	554.5537379	554.553738	2.552%
Fresno	2005	MDV	DSL	60	232.7653436	369.0636774	369.063677	0.001%
Fresno	2005	MDV	GAS	65	506743.4137	619.6376375	619.637637	2.519%
Fresno	2005	MDV	DSL	65	229.8161802	369.0636924	369.063692	0.001%
Fresno	2005	MDV	GAS	70	448121.3124	664.1628397	664.16284	2.228%
Fresno	2005	MDV	DSL	70	203.2301423	369.0636551	369.063655	0.001%
Fresno	2005	MH	GAS	5	268.9167968	2513.497406	2513.49741	0.001%
Fresno	2005	MH	DSL	5	44.76225056	2381.129731	2381.12973	0.000%
Fresno	2005	MH	GAS	10	1351.847182	2036.128315	2036.12831	0.007%
Fresno	2005	MH	DSL	10	222.8096365	2162.072949	2162.07295	0.001%
Fresno	2005	MH	GAS	15	1707.614697	1392.429658	1392.42966	0.008%
Fresno	2005	MH	DSL	15	300.715632	1775.243505	1775.24351	0.001%
Fresno	2005	MH	GAS	20	1771.215993	1006.068537	1006.06854	0.009%
Fresno	2005	MH	DSL	20	318.91989	1456.791888	1456.79189	0.002%
Fresno	2005	MH	GAS	25	1973.543913	768.012138	768.012138	0.010%
Fresno	2005	MH	DSL	25	332.1424004	1306.661906	1306.66191	0.002%
Fresno	2005	MH	GAS	30	2231.372516	619.4336513	619.433651	0.011%
Fresno	2005	MH	DSL	30	399.3743491	1226.495736	1226.49574	0.002%
Fresno	2005	MH	GAS	35	2773.257546	527.8465727	527.846573	0.014%
Fresno	2005	MH	DSL	35	470.9149121	1159.967885	1159.96789	0.002%
Fresno	2005	MH	GAS	40	3452.419773	475.233224	475.233224	0.017%
Fresno	2005	MH	DSL	40	584.5676013	1107.078048	1107.07805	0.003%
Fresno	2005	MH	GAS	45	3148.370866	452.0558634	452.055863	0.016%
Fresno	2005	MH	DSL	45	478.6833316	1067.826603	1067.8266	0.002%
Fresno	2005	MH	GAS	50	3064.012004	454.3218205	454.321821	0.015%
Fresno	2005	MH	DSL	50	535.7245191	1042.213217	1042.21322	0.003%
Fresno	2005	MH	GAS	55	4007.448442	482.4155989	482.415599	0.020%
Fresno	2005	MH	DSL	55	785.0557197	1030.238195	1030.2382	0.004%
Fresno	2005	MH	GAS	60	4624.41305	541.2091675	541.209168	0.023%
Fresno	2005	MH	DSL	60	943.3760148	1031.901337	1031.90134	0.005%
Fresno	2005	MH	GAS	65	722.62303	641.4979244	641.497924	0.004%
Fresno	2005	MH	DSL	65	148.4605629	1047.202697	1047.2027	0.001%
Fresno	2005	OBUS	GAS	5	179.4898447	2513.497341	2513.49734	0.001%
Fresno	2005	OBUS	DSL	5	165.7644542	3084.635701	3084.6357	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	OBUS	GAS	10	902.2969282	2036.128585	2036.12858	0.004%
Fresno	2005	OBUS	DSL	10	764.4488042	2486.733654	2486.73365	0.004%
Fresno	2005	OBUS	GAS	15	1139.755796	1392.429568	1392.42957	0.006%
Fresno	2005	OBUS	DSL	15	1006.387031	2024.544507	2024.54451	0.005%
Fresno	2005	OBUS	GAS	20	1182.206665	1006.068712	1006.06871	0.006%
Fresno	2005	OBUS	DSL	20	1343.731614	1711.279078	1711.27908	0.007%
Fresno	2005	OBUS	GAS	25	1317.251509	768.0121314	768.012131	0.007%
Fresno	2005	OBUS	DSL	25	1394.142051	1595.098427	1595.09843	0.007%
Fresno	2005	OBUS	GAS	30	1489.340651	619.4336132	619.433613	0.007%
Fresno	2005	OBUS	DSL	30	1945.026661	1550.74938	1550.74938	0.010%
Fresno	2005	OBUS	GAS	35	1851.024293	527.8466067	527.846607	0.009%
Fresno	2005	OBUS	DSL	35	2872.193717	1530.258857	1530.25886	0.014%
Fresno	2005	OBUS	GAS	40	2304.334444	475.2331835	475.233184	0.011%
Fresno	2005	OBUS	DSL	40	3065.466762	1421.24912	1421.24912	0.015%
Fresno	2005	OBUS	GAS	45	2101.3955	452.0558515	452.055852	0.010%
Fresno	2005	OBUS	DSL	45	3431.453572	1443.331847	1443.33185	0.017%
Fresno	2005	OBUS	GAS	50	2045.089835	454.321748	454.321748	0.010%
Fresno	2005	OBUS	DSL	50	3664.621488	1399.471266	1399.47127	0.018%
Fresno	2005	OBUS	GAS	55	2674.791345	482.4155895	482.415589	0.013%
Fresno	2005	OBUS	DSL	55	4802.489099	1359.79194	1359.79194	0.024%
Fresno	2005	OBUS	GAS	60	3086.587339	541.2091188	541.209119	0.015%
Fresno	2005	OBUS	DSL	60	3246.411046	1188.092655	1188.09266	0.016%
Fresno	2005	OBUS	GAS	65	482.3182765	641.497927	641.497927	0.002%
Fresno	2005	OBUS	DSL	65	845.5605614	1365.372637	1365.37264	0.004%
Fresno	2005	SBUS	GAS	5	43.72972372	2513.49706	2513.49706	0.000%
Fresno	2005	SBUS	DSL	5	178.2500641	2650.118082	2650.11808	0.001%
Fresno	2005	SBUS	GAS	10	153.2704446	2036.128028	2036.12803	0.001%
Fresno	2005	SBUS	DSL	10	624.7573386	2189.204641	2189.20464	0.003%
Fresno	2005	SBUS	GAS	15	306.5408773	1392.429627	1392.42963	0.002%
Fresno	2005	SBUS	DSL	15	1249.514677	1797.52678	1797.52678	0.006%
Fresno	2005	SBUS	GAS	20	416.0794089	1006.068501	1006.0685	0.002%
Fresno	2005	SBUS	DSL	20	1696.012951	1418.069831	1418.06983	0.008%
Fresno	2005	SBUS	GAS	25	656.8093052	768.0121132	768.012113	0.003%
Fresno	2005	SBUS	DSL	25	2677.270418	1323.090846	1323.09085	0.013%
Fresno	2005	SBUS	GAS	30	787.9984747	619.4336026	619.433603	0.004%
Fresno	2005	SBUS	DSL	30	3212.02061	1241.920828	1241.92083	0.016%
Fresno	2005	SBUS	GAS	35	808.7813293	527.8465156	527.846516	0.004%
Fresno	2005	SBUS	DSL	35	3296.735071	1174.559776	1174.55978	0.016%
Fresno	2005	SBUS	GAS	40	545.9701739	475.2331343	475.233134	0.003%
Fresno	2005	SBUS	DSL	40	2225.470458	1121.007691	1121.00769	0.011%
Fresno	2005	SBUS	GAS	45	261.9433353	452.0558193	452.055819	0.001%
Fresno	2005	SBUS	DSL	45	1067.727156	1081.264572	1081.26457	0.005%
Fresno	2005	SBUS	GAS	50	131.1891745	454.3217491	454.321749	0.001%
Fresno	2005	SBUS	DSL	50	534.7501924	1055.33042	1055.33042	0.003%
Fresno	2005	SBUS	GAS	55	195.2667083	482.415443	482.415443	0.001%
Fresno	2005	SBUS	DSL	55	795.9414888	1043.205234	1043.20523	0.004%
Fresno	2005	SBUS	GAS	60	108.6750878	541.2091468	541.209147	0.001%
Fresno	2005	SBUS	DSL	60	442.9788178	1044.889015	1044.88902	0.002%
Fresno	2005	T6	GAS	5	313.9394	2513.49736	2513.49736	0.002%
Fresno	2005	T6	DSL	5	2964.362997	2621.415259	2621.41526	0.015%
Fresno	2005	T6	GAS	10	1578.176144	2036.128442	2036.12844	0.008%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	T6	DSL	10	14755.48228	2165.493866	2165.49387	0.073%
Fresno	2005	T6	GAS	15	1993.506875	1392.42983	1392.42983	0.010%
Fresno	2005	T6	DSL	15	19914.77964	1778.058179	1778.05818	0.099%
Fresno	2005	T6	GAS	20	2067.756551	1006.068559	1006.06856	0.010%
Fresno	2005	T6	DSL	20	21120.34755	1402.711041	1402.71104	0.105%
Fresno	2005	T6	GAS	25	2303.958615	768.012209	768.012209	0.011%
Fresno	2005	T6	DSL	25	21996.00436	1308.760752	1308.76075	0.109%
Fresno	2005	T6	GAS	30	2604.953592	619.4336025	619.433602	0.013%
Fresno	2005	T6	DSL	30	26448.41322	1228.469867	1228.46987	0.131%
Fresno	2005	T6	GAS	35	3237.56208	527.8465737	527.846574	0.016%
Fresno	2005	T6	DSL	35	31186.16258	1161.838388	1161.83839	0.155%
Fresno	2005	T6	GAS	40	4030.43084	475.2332482	475.233248	0.020%
Fresno	2005	T6	DSL	40	38712.76602	1108.866313	1108.86631	0.192%
Fresno	2005	T6	GAS	45	3675.47757	452.0558736	452.055874	0.018%
Fresno	2005	T6	DSL	45	31700.62212	1069.553643	1069.55364	0.158%
Fresno	2005	T6	GAS	50	3576.99512	454.3217943	454.321794	0.018%
Fresno	2005	T6	DSL	50	35478.15139	1043.900377	1043.90038	0.176%
Fresno	2005	T6	GAS	55	4678.38379	482.4155587	482.415559	0.023%
Fresno	2005	T6	DSL	55	51990.01588	1031.906517	1031.90652	0.258%
Fresno	2005	T6	GAS	60	5398.64157	541.2092298	541.20923	0.027%
Fresno	2005	T6	DSL	60	62474.71663	1033.572061	1033.57206	0.311%
Fresno	2005	T6	GAS	65	843.606066	641.4979114	641.497911	0.004%
Fresno	2005	T6	DSL	65	9831.744097	1048.89701	1048.89701	0.049%
Fresno	2005	T7	GAS	5	18.76846249	2513.497347	2513.49735	0.000%
Fresno	2005	T7	DSL	5	6085.370392	4025.733112	4025.73311	0.030%
Fresno	2005	T7	GAS	10	91.73117308	2036.127866	2036.12787	0.000%
Fresno	2005	T7	DSL	10	23246.39627	3325.570158	3325.57016	0.116%
Fresno	2005	T7	GAS	15	100.034277	1392.429565	1392.42957	0.000%
Fresno	2005	T7	DSL	15	28430.53281	2730.581376	2730.58138	0.141%
Fresno	2005	T7	GAS	20	170.9568883	1006.068425	1006.06843	0.001%
Fresno	2005	T7	DSL	20	70220.90117	2156.026899	2156.0269	0.349%
Fresno	2005	T7	GAS	25	223.1096354	768.012027	768.012027	0.001%
Fresno	2005	T7	DSL	25	64214.81804	2009.876716	2009.87672	0.319%
Fresno	2005	T7	GAS	30	407.4400111	619.433607	619.433607	0.002%
Fresno	2005	T7	DSL	30	108412.4915	1886.573218	1886.57322	0.539%
Fresno	2005	T7	GAS	35	724.6866805	527.8465816	527.846582	0.004%
Fresno	2005	T7	DSL	35	195036.7831	1784.246602	1784.2466	0.970%
Fresno	2005	T7	GAS	40	631.7265342	475.2333056	475.233306	0.003%
Fresno	2005	T7	DSL	40	184058.0666	1702.896867	1702.89687	0.915%
Fresno	2005	T7	GAS	45	668.4343308	452.0557651	452.055765	0.003%
Fresno	2005	T7	DSL	45	257693.2211	1642.524014	1642.52401	1.281%
Fresno	2005	T7	GAS	50	699.3715848	454.3217173	454.321717	0.003%
Fresno	2005	T7	DSL	50	267994.6167	1603.128043	1603.12804	1.332%
Fresno	2005	T7	GAS	55	1026.625606	482.4155395	482.415539	0.005%
Fresno	2005	T7	DSL	55	326803.0314	1584.708954	1584.70895	1.625%
Fresno	2005	T7	GAS	60	253.3729539	541.2091887	541.209189	0.001%
Fresno	2005	T7	DSL	60	99555.62045	1587.266747	1587.26675	0.495%
Fresno	2005	T7	GAS	65	135.80266	641.4978614	641.497861	0.001%
Fresno	2005	T7	DSL	65	54528.61248	1610.801421	1610.80142	0.271%
Fresno	2005	UBUS	GAS	5	112.3655482	2513.497178	2513.49718	0.001%
Fresno	2005	UBUS	DSL	5	259.736822	2627.453122	2627.45312	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2005	UBUS	GAS	10	403.3140682	2036.128273	2036.12827	0.002%
Fresno	2005	UBUS	DSL	10	932.274273	2627.453223	2627.45322	0.005%
Fresno	2005	UBUS	GAS	15	806.6280844	1392.429514	1392.42951	0.004%
Fresno	2005	UBUS	DSL	15	1864.54857	2627.453199	2627.4532	0.009%
Fresno	2005	UBUS	GAS	20	1064.467933	1006.06853	1006.06853	0.005%
Fresno	2005	UBUS	DSL	20	2460.55387	2627.453313	2627.45331	0.012%
Fresno	2005	UBUS	GAS	25	1603.164937	768.0121541	768.012154	0.008%
Fresno	2005	UBUS	DSL	25	3705.77074	2627.453153	2627.45315	0.018%
Fresno	2005	UBUS	GAS	30	2006.478844	619.4336943	619.433694	0.010%
Fresno	2005	UBUS	DSL	30	4638.04437	2627.453188	2627.45319	0.023%
Fresno	2005	UBUS	GAS	35	1966.340307	527.8465849	527.846585	0.010%
Fresno	2005	UBUS	DSL	35	4545.26272	2627.453585	2627.45358	0.023%
Fresno	2005	UBUS	GAS	40	1417.551931	475.2332242	475.233224	0.007%
Fresno	2005	UBUS	DSL	40	3276.71961	2627.453246	2627.45325	0.016%
Fresno	2005	UBUS	GAS	45	617.9537663	452.0558589	452.055859	0.003%
Fresno	2005	UBUS	DSL	45	1428.421313	2627.453287	2627.45329	0.007%
Fresno	2005	UBUS	GAS	50	313.9658901	454.3218054	454.321805	0.002%
Fresno	2005	UBUS	DSL	50	725.74291	2627.453219	2627.45322	0.004%
Fresno	2005	UBUS	GAS	55	389.2542268	482.4155339	482.415534	0.002%
Fresno	2005	UBUS	DSL	55	899.774456	2627.453379	2627.45338	0.004%
Fresno	2005	UBUS	GAS	60	637.1160815	541.2091431	541.209143	0.003%
Fresno	2005	UBUS	DSL	60	1472.715687	2627.453055	2627.45305	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide	0.504	Used average of 2004-2006 historical emission factors.
Methane	0.000031	
Nitrous oxide	0.000011	

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	2,531,700,000	2,610	637988	39.2	13.9	583,447
Commercial	2,950,179,600	7,503	743445	45.7	16.2	679,888
Industrial	0		0	0.0	0.0	0
Total	5,481,879,600		1,381,434	85.0	30.2	1,263,335

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	133,860,000	138	783,081	73.6	1.5	712,228
Commercial	158,459,600	403	926,989	87.2	1.7	843,115
Industrial	0		0	0.0	0.0	0
Total	292,319,600		1,710,070	160.8	3.2	1,555,342

Notes and Sources:

*Used the 2020 emission factor.

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Emission factors for carbon dioxide from: PG&E 2013. Pacific Gas and Electric Company. ; PG&E. 2013. Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

- Per capita emission rates are from the year 2010 based on actual usage from PG&E. The electricity and natural gas usage for this year are calculated as the per capita rate multiplied by the projected population.

Community Greenhouse Gas Inventory

Offroad Equipment

Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Year 2035	Emissions (tons/year)			Emissions MTCO2e
	Population	CO2	CH4	N2O	
Fresno County	1,301,000	896	0.0329	0.0081	815
Fresno	780,600	537	0	0	489
Percent Fresno/Fresno County	60.0%				

Other Equipment

Location	Year 2035	Emissions (tons/year)			Emissions MTCO2e
	Population	CO2	CH4	N2O	
Fresno County	1,301,000	1,468	0.384	0.12457	1,375
Fresno	780,600	881	0	0	825
Percent Fresno/Fresno County	60.0%				

Total Fresno 1,314

Notes:

Emissions for Fresno County are from OFFROAD2007 for the year 2035; emissions from Fresno are apportioned based on population in 2035

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

2020 Emissions (MTCO ₂ e per person)*	0.89
--	------

Fresno

Population	970,000
Emissions (MTCO ₂ e per person)	863,300
(estimated by using 2020 California per person emissions)	

Sources/Notes:

* 2020 California per capita emissions rate.

Community Greenhouse Gas Inventory

Summary

Year: 2010

Prepared by FirstCarbon Solutions

	Data	Source
City Information		
Population	545,000	Fresno COG
Employment	209,261	Census 2011

County Information		
Population	930,000	Fresno COG

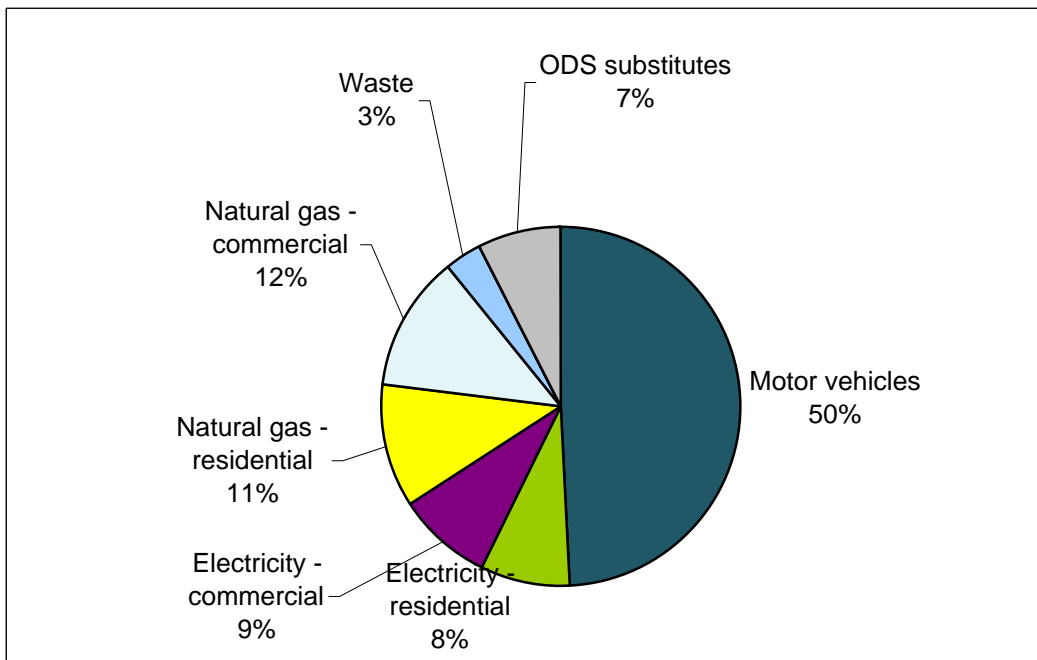
-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050. Produced under contract by: The Planning Center|DC&E. March 2012.

- U.S. Census Bureau. 2011. 2009-2001 American Community Survey 3-Year Estimates

Website:

http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_1YR_DP03&prodType=table; this number was backcast against the population growth rate of 2.239%

Sources	MTCO ₂ e
Motor vehicles	1,795,666
Electricity - residential	289,745
Electricity - commercial	319,817
Natural gas - residential	400,169
Natural gas - commercial	448,706
Waste	123,945
Offroad equipment	1,051
ODS substitutes	273,422
<u>Total</u>	<u>3,652,521</u>



Community Greenhouse Gas Inventory

Waste

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Generated

Tons / year (instate)	333,099
-----------------------	---------

Percent Waste

Mixed MSW	48.2
Newspaper	1.3
Office paper	10.1
Corrugated cardboard	4.8
Magazines/third class mail	1.2
Food scraps	15.5
Grass	1.9
Leaves	1.9
Branches	0.6
Dimensional lumber	14.5

Waste Emissions

Emissions (MTCO ₂ e)	123,945	SEEC 2013
Emissions (MTCO ₂ e/person)	0.2274	Divide emissions by population

Sources:

Waste Generated: California Department of Resources Recycling and Recovery (CalRecycle). 2013. Jurisdiction Disposal By Facility: With Reported Alternative Daily Cover (ADC) and Alternative Intermediate Cover (AIC) Website: <http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=OriginJurisdictionIDs%3d168%26ReportYear%3d2010%26ReportName%3dReportEDRSJurisDisposalByFacility>, Accessed July 31, 2013.

Percent waste: California Integrated Waste Management Board (CIWMB), California 2008 Statewide Waste Characterization Study. Produced under contract by: Cascadia Consulting Group. August 2009. www.calrecycle.ca.gov/wastechar/WasteStudies.htm. Notes on waste percentages: office paper includes white ledger paper, other office paper, other miscellaneous paper, remainder/composite paper. Magazines includes magazines and catalogs, phone books and directories, and paper bags. Leaves and grass was one category in the publication; therefore, it was split into two categories by half. MSW (municipal solid waste) includes all other categories of waste to equal 100%.

Waste Emissions: Statewide Energy Efficiency Collaborative (SEEC). July 2013. Climate and Energy Management Suite. Version 2. Website: cems.californiaseec.org. Model run by Michael Brandman Associates/FirstCarbon Solutions, output contained in Appendix. Note: it was assumed that the landfills have methane capture. According to the County of Fresno Agenda Item 21, March 11, 2008 regarding the Feasibility Study on Gas to Energy Conversion at Southeast Regional Disposal Site and Amercian Avenue Disposal Site, Amercian Avenue Disposal site had methane capture at that time; that site collects 83 percent of the waste for the City (http://www2.co.fresno.ca.us/0110a/Questys_Agenda/MG151925/AS151956/AS151970/AI151985/DO152036/DO_152036.PDF).

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **9,162,734** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 3,344,397,910 Source: VMT per day * 365 days/year
 Annual VMT Growth Rate 2.48%

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	638	0	638	5
5 - 10 MPH	530	620	0	1,150	5
10 - 15 MPH	103,322	133,374	283,652	520,348	10
15 - 20 MPH	3,491	5,166	5,457	14,114	15
20 - 25 MPH	15,277	25,536	43,535	84,349	20
25 - 30 MPH	62,398	82,625	179,532	324,556	25
30 - 35 MPH	69,155	109,440	136,708	315,303	30
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801	35
40 - 45 MPH	182,177	222,301	488,347	892,825	40
45 - 50 MPH	154,975	204,211	601,450	960,636	45
50 - 55 MPH	83,818	118,402	285,006	487,226	50
55 - 60 MPH	372,022	442,335	1,046,233	1,860,591	55
60 - 65 MPH	356,646	443,044	902,392	1,702,082	60
65 - 70 MPH	20	26	71	117	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	1,811,202	2,315,549	5,035,983	9,162,734	

Source:
 Fehr and Peers. 2013. 2010 VMT was found by using 2011 Existing Daily VMT provided by Fehr and Peers and back cast those numbers by the annual VMT growth rate).
 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: [((2056 VMT-2011 VMT)/2011 VMT)/45 years=.0248].

2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	654	0	654
5 - 10 MPH	543	636	0	1,179
10 - 15 MPH	105,950	136,766	290,867	533,583
15 - 20 MPH	3,580	5,297	5,596	14,473
20 - 25 MPH	15,666	26,186	44,642	86,494
25 - 30 MPH	63,985	84,727	184,099	332,811
30 - 35 MPH	70,914	112,224	140,185	323,323
35 - 40 MPH	417,733	541,256	1,090,653	2,049,642
40 - 45 MPH	186,811	227,955	500,768	915,534
45 - 50 MPH	158,917	209,405	616,748	985,070
50 - 55 MPH	85,950	121,414	292,255	499,619
55 - 60 MPH	381,485	453,586	1,072,845	1,907,916
60 - 65 MPH	365,717	454,313	925,345	1,745,375
65 - 70 MPH	20	27	73	120
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,857,271	2,374,446	5,164,076	9,395,793

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	1788	520348	14114	84349	324556	315303	1998801	892825	960636	487226	1860591	1702082	117	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.53%	0.10%	GAS Heavy duty 0.6% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.25%	0.01%	Light trucks 44.5% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.43%	0.01%	Passenger 44.2% LDA, MCY
LHD1	2.91%	1.81%	DSL Heavy duty 8.3% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.28%	0.48%	Light trucks 2.3% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.67%	0.00%	Passenger 0.1% LDA, MCY
MDV	18.58%	0.01%	Total 100.0%
MH	0.16%	0.04%	
OBUS	0.11%	0.11%	
SBUS	0.02%	0.06%	
T6	0.22%	1.31%	
T7	0.04%	6.68%	
UBUS	0.06%	0.14%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1119	835	645	511	424	365	326	302	291	290	301	324	362	388	0
LDT1		1283	958	740	586	486	419	374	347	334	333	345	371	415	445	0
LDT2		1533	1145	884	700	581	500	447	414	398	398	413	444	496	531	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		240	220	189	165	147	134	125	119	117	117	120	127	139	158	0
MDV		1926	1438	1111	880	730	628	562	520	501	500	519	558	623	668	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		404	389	366	351	341	335	333	334	338	346	358	376	404	444	0
LDT1		397	388	375	366	360	357	355	356	358	363	370	381	397	420	0
LDT2		394	384	369	359	353	349	347	348	350	356	364	376	393	420	0
LHD1		527	527	527	527	527	527	527	527	527	527	527	0	0	0	0
LHD2		527	527	527	527	527	527	527	527	527	527	527	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		453	422	376	345	325	314	309	310	319	334	359	397	452	534	0
MH		2377	2158	1772	1454	1304	1224	1158	1105	1066	1040	1028	1030	1045	0	0
OBUS		3053	2459	2002	1695	1580	1538	1519	1410	1434	1390	1350	1175	1355	0	0
SBUS		2639	2180	1790	1412	1317	1237	1169	1116	1077	1051	1039	1040	0	0	0
T6		2610	2156	1771	1397	1303	1223	1157	1104	1065	1039	1028	1029	1044	0	0
T7		4024	3324	2729	2152	2009	1886	1783	1702	1642	1602	1584	1587	1610	0	0
UBUS		2570	2570	2570	2570	2570	2570	2570	2570	2570	2570	2570	2570	0	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		778	226524	6144	36720	141289	137261	870141	388675	418195	212105	809974	740970	51	0	0
LDT1		112	32536	883	5274	20294	19715	124980	55826	60066	30465	116338	106427	7	0	0
LDT2		294	85491	2319	13858	53323	51803	328396	146688	157829	80050	305689	279646	19	0	0
LHD1		52	15159	411	2457	9455	9186	58231	26011	27986	14194	54205	49587	3	0	0
LHD2		5	1482	40	240	924	898	5692	2542	2735	1387	5298	4847	0	0	0
MCY		12	3463	94	561	2160	2098	13301	5941	6392	3242	12381	11326	1	0	0
MDV		332	96692	2623	15674	60309	58590	371420	165906	178506	90537	345737	316283	22	0	0
MH		3	808	22	131	504	489	3103	1386	1491	756	2888	2642	0	0	0
OBUS		2	556	15	90	347	337	2137	954	1027	521	1989	1820	0	0	0
SBUS		0	119	3	19	74	72	458	204	220	112	426	390	0	0	0
T6		4	1124	30	182	701	681	4317	1928	2075	1052	4019	3676	0	0	0
T7		1	191	5	31	119	115	732	327	352	178	681	623	0	0	0
UBUS		1	292	8	47	182	177	1123	502	540	274	1046	957	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		2	524	14	85	327	318	2014	900	968	491	1875	1715	0	0	0
LDT1		0	32	1	5	20	19	123	55	59	30	114	105	0	0	0
LDT2		0	33	1	5	21	20	126	56	61	31	118	108	0	0	0
LHD1		32	9392	255	1522	5858	5691	36078	16115	17339	8794	33584	30723	2	0	0
LHD2		9	2518	68	408	1571	1526	9673	4321	4649	2358	9004	8237	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	74	2	12	46	45	285	127	137	69	265	242	0	0	0
MH		1	190	5	31	119	115	730	326	351	178	680	622	0	0	0
OBUS		2	559	15	91	349	339	2147	959	1032	523	1998	1828	0	0	0
SBUS		1	321	9	52	200	195	1234	551	593	301	1148	1051	0	0	0
T6		23	6794	184	1101	4238	4117	26099	11658	12543	6362	24294	22224	2	0	0
T7		119	34752	943	5633	21676	21058	133493	59629	64157	32540	124262	113676	8	0	0
UBUS		2	721	20	117	450	437	2769	1237	1331	675	2578	2358	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		349	75,988	1,592	7,535	24,057	20,115	114,001	47,142	48,821	24,736	97,937	96,334	7	0	0	558,266
LDT1		58	12,512	262	1,242	3,964	3,314	18,781	7,768	8,044	4,076	16,137	15,874	1	0	0	91,974
LDT2		181	39,290	823	3,897	12,442	10,403	58,957	24,382	25,250	12,793	50,652	49,824	4	0	0	288,718
LHD1		53	12,393	230	993	2,916	2,285	12,341	4,963	5,080	2,589	10,499	0	0	0	0	54,287

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	5	1,211	22	97	285	223	1,206	485	496	253	1,026	0	0	0	0	5,306
MCY	1	307	7	37	128	113	668	285	299	152	597	579	0	0	0	3,171
MDV	257	55,838	1,170	5,538	17,681	14,784	83,785	34,649	35,883	18,181	71,982	70,806	5	0	0	410,303
MH	3	660	12	53	155	122	658	264	271	138	559	574	0	0	0	3,467
OBUS	2	455	8	36	107	84	453	182	186	95	385	395	0	0	0	2,388
SBUS	0	97	2	8	23	18	97	39	40	20	83	85	0	0	0	511
T6	4	919	17	74	216	169	915	368	377	192	778	799	0	0	0	4,824
T7	1	156	3	12	37	29	155	62	64	33	132	135	0	0	0	818
UBUS	1	239	4	19	56	44	238	96	98	50	203	208	0	0	0	1,255
Total	914	200,065	4,153	19,541	62,065	51,703	292,256	120,685	124,910	63,307	250,970	235,613	18	0	0	1,426,202
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	0	82	2	12	45	43	269	121	131	68	269	259	0	0	0	1,302
LDT1	0	5	0	1	3	3	18	8	8	4	17	16	0	0	0	83
LDT2	0	5	0	1	3	3	18	8	9	4	17	16	0	0	0	84
LHD1	7	1,987	54	322	1,239	1,204	7,632	3,409	3,668	1,860	7,104	0	0	0	0	28,479
LHD2	2	533	14	86	332	323	2,048	915	984	499	1,906	0	0	0	0	7,641
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	13	0	2	6	6	35	16	17	9	38	39	0	0	0	181
MH	1	165	4	18	62	57	340	145	150	74	281	257	0	0	0	1,552
OBUS	2	552	12	62	221	209	1,310	543	594	292	1,083	862	0	0	0	5,740
SBUS	1	281	6	30	106	97	579	247	256	127	479	439	0	0	0	2,647
T6	24	5,882	131	618	2,217	2,022	12,123	5,168	5,364	2,655	10,023	9,184	1	0	0	55,387
T7	193	46,382	1,033	4,868	17,484	15,944	95,590	40,751	42,292	20,936	79,029	72,413	5	0	0	436,726
UBUS	3	744	20	121	464	451	2,857	1,276	1,373	696	2,659	2,433	0	0	0	13,094
Total	233	56,630	1,277	6,139	22,183	20,360	122,817	52,606	54,847	27,226	102,906	85,918	6	0	0	553,147

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	1,979,350	1,795,666	1,795,666

EMFAC 2011
 2010 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter:
 region - County: Fresno, year - 2010, season - annual average,
 vehicle category - EMFAC2007, model year - aggregated,
 speed - all speeds, fuel - all) Website:
<http://www.arb.ca.gov/emfac/>

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2010	LDA	GAS	5	693	1118.51	1112.61	0.003%
Fresno	2010	LDA	DSL	5	2	403.71	399.40	0.000%
Fresno	2010	LDA	GAS	10	1884	835.50	831.08	0.008%
Fresno	2010	LDA	DSL	10	4	388.74	384.86	0.000%
Fresno	2010	LDA	GAS	15	1788	645.40	641.99	0.008%
Fresno	2010	LDA	DSL	15	4	366.25	362.99	0.000%
Fresno	2010	LDA	GAS	20	464306	511.10	508.40	2.031%
Fresno	2010	LDA	DSL	20	1075	351.09	348.26	0.005%
Fresno	2010	LDA	GAS	25	56285	424.07	421.84	0.246%
Fresno	2010	LDA	DSL	25	130	341.24	338.69	0.001%
Fresno	2010	LDA	GAS	30	172555	365.00	363.07	0.755%
Fresno	2010	LDA	DSL	30	399	335.48	333.09	0.002%
Fresno	2010	LDA	GAS	35	672123	326.31	324.59	2.940%
Fresno	2010	LDA	DSL	35	1556	333.12	330.79	0.007%
Fresno	2010	LDA	GAS	40	1261393	302.09	300.50	5.518%
Fresno	2010	LDA	DSL	40	2920	333.89	331.54	0.013%
Fresno	2010	LDA	GAS	45	1084869	290.77	289.23	4.746%
Fresno	2010	LDA	DSL	45	2511	337.89	335.43	0.011%
Fresno	2010	LDA	GAS	50	1492167	290.46	288.93	6.527%
Fresno	2010	LDA	DSL	50	3454	345.57	342.89	0.015%
Fresno	2010	LDA	GAS	55	1064211	301.16	299.57	4.655%
Fresno	2010	LDA	DSL	55	2464	357.86	354.83	0.011%
Fresno	2010	LDA	GAS	60	1286323	323.81	322.10	5.627%
Fresno	2010	LDA	DSL	60	2978	376.34	372.80	0.013%
Fresno	2010	LDA	GAS	65	1270026	361.82	359.91	5.556%
Fresno	2010	LDA	DSL	65	2940	403.61	399.31	0.013%
Fresno	2010	LDA	GAS	70	1123104	387.82	385.77	4.913%
Fresno	2010	LDA	DSL	70	2600	443.84	438.41	0.011%
Fresno	2010	LDT1	GAS	5	100	1283.31	1276.59	0.000%
Fresno	2010	LDT1	DSL	5	0	396.83	393.67	0.000%
Fresno	2010	LDT1	GAS	10	271	957.84	952.82	0.001%
Fresno	2010	LDT1	DSL	10	0	388.06	385.22	0.000%
Fresno	2010	LDT1	GAS	15	257	739.63	735.75	0.001%
Fresno	2010	LDT1	DSL	15	0	374.89	372.50	0.000%
Fresno	2010	LDT1	GAS	20	66689	586.30	583.23	0.292%
Fresno	2010	LDT1	DSL	20	65	366.01	363.94	0.000%
Fresno	2010	LDT1	GAS	25	8084	486.45	483.90	0.035%
Fresno	2010	LDT1	DSL	25	8	360.24	358.37	0.000%
Fresno	2010	LDT1	GAS	30	24784	418.68	416.49	0.108%
Fresno	2010	LDT1	DSL	30	24	356.87	355.11	0.000%
Fresno	2010	LDT1	GAS	35	96538	374.28	372.32	0.422%
Fresno	2010	LDT1	DSL	35	95	355.49	353.78	0.000%
Fresno	2010	LDT1	GAS	40	181176	346.55	344.74	0.793%
Fresno	2010	LDT1	DSL	40	178	355.94	354.22	0.001%
Fresno	2010	LDT1	GAS	45	155822	333.56	331.81	0.682%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of
								Total VMT
Fresno	2010	LDT1	DSL	45	153	358.28	356.48	0.001%
Fresno	2010	LDT1	GAS	50	214323	333.21	331.46	0.938%
Fresno	2010	LDT1	DSL	50	210	362.78	360.81	0.001%
Fresno	2010	LDT1	GAS	55	152854	345.47	343.66	0.669%
Fresno	2010	LDT1	DSL	55	150	369.97	367.76	0.001%
Fresno	2010	LDT1	GAS	60	184757	371.49	369.54	0.808%
Fresno	2010	LDT1	DSL	60	181	380.80	378.21	0.001%
Fresno	2010	LDT1	GAS	65	182416	415.06	412.89	0.798%
Fresno	2010	LDT1	DSL	65	179	396.77	393.62	0.001%
Fresno	2010	LDT1	GAS	70	161313	444.88	442.55	0.706%
Fresno	2010	LDT1	DSL	70	158	420.33	416.35	0.001%
Fresno	2010	LDT2	GAS	5	262	1532.90	1523.22	0.001%
Fresno	2010	LDT2	DSL	5	0	393.55	388.32	0.000%
Fresno	2010	LDT2	GAS	10	711	1144.66	1137.43	0.003%
Fresno	2010	LDT2	DSL	10	0	383.77	379.04	0.000%
Fresno	2010	LDT2	GAS	15	675	884.09	878.51	0.003%
Fresno	2010	LDT2	DSL	15	0	369.05	365.09	0.000%
Fresno	2010	LDT2	GAS	20	175232	700.40	695.98	0.767%
Fresno	2010	LDT2	DSL	20	67	359.13	355.69	0.000%
Fresno	2010	LDT2	GAS	25	21242	581.13	577.46	0.093%
Fresno	2010	LDT2	DSL	25	8	352.69	349.58	0.000%
Fresno	2010	LDT2	GAS	30	65123	500.18	497.02	0.285%
Fresno	2010	LDT2	DSL	30	25	348.92	346.01	0.000%
Fresno	2010	LDT2	GAS	35	253663	447.15	444.33	1.110%
Fresno	2010	LDT2	DSL	35	98	347.37	344.54	0.000%
Fresno	2010	LDT2	GAS	40	476057	413.99	411.37	2.082%
Fresno	2010	LDT2	DSL	40	183	347.88	345.02	0.001%
Fresno	2010	LDT2	GAS	45	409436	398.47	395.95	1.791%
Fresno	2010	LDT2	DSL	45	158	350.49	347.50	0.001%
Fresno	2010	LDT2	GAS	50	563153	398.05	395.53	2.463%
Fresno	2010	LDT2	DSL	50	217	355.52	352.26	0.001%
Fresno	2010	LDT2	GAS	55	401639	412.70	410.09	1.757%
Fresno	2010	LDT2	DSL	55	155	363.56	359.88	0.001%
Fresno	2010	LDT2	GAS	60	485466	443.76	440.96	2.124%
Fresno	2010	LDT2	DSL	60	187	375.65	371.35	0.001%
Fresno	2010	LDT2	GAS	65	479315	495.83	492.70	2.097%
Fresno	2010	LDT2	DSL	65	185	393.49	388.26	0.001%
Fresno	2010	LDT2	GAS	70	423866	531.46	528.10	1.854%
Fresno	2010	LDT2	DSL	70	163	419.81	413.21	0.001%
Fresno	2010	LHD1	GAS	5	18900	2513.50	2513.50	0.083%
Fresno	2010	LHD1	DSL	5	7256	526.86	526.86	0.032%
Fresno	2010	LHD1	GAS	10	49284	2036.13	2036.13	0.216%
Fresno	2010	LHD1	DSL	10	24129	526.86	526.86	0.106%
Fresno	2010	LHD1	GAS	15	112226	1392.43	1392.43	0.491%
Fresno	2010	LHD1	DSL	15	52256	526.86	526.86	0.229%
Fresno	2010	LHD1	GAS	20	129676	1006.07	1006.07	0.567%
Fresno	2010	LHD1	DSL	20	57290	526.86	526.86	0.251%
Fresno	2010	LHD1	GAS	25	99891	768.01	768.01	0.437%
Fresno	2010	LHD1	DSL	25	61315	526.86	526.86	0.268%
Fresno	2010	LHD1	GAS	30	88336	619.43	619.43	0.386%
Fresno	2010	LHD1	DSL	30	51758	526.86	526.86	0.226%

Area	CalYr	Veh	Fuel	Speed	VMT	CO2_RUNE	CO2_RUNEX	Percent of
				(Miles/hr)	(Miles/day)	(gms/mile)	(gms/mile)	Total VMT
Fresno	2010	LHD1	GAS	35	33008	527.85	527.85	0.144%
Fresno	2010	LHD1	DSL	35	27315	526.86	526.86	0.119%
Fresno	2010	LHD1	GAS	40	9743	475.23	475.23	0.043%
Fresno	2010	LHD1	DSL	40	14995	526.86	526.86	0.066%
Fresno	2010	LHD1	GAS	45	11995	452.06	452.06	0.052%
Fresno	2010	LHD1	DSL	45	16184	526.86	526.86	0.071%
Fresno	2010	LHD1	GAS	50	88567	454.32	454.32	0.387%
Fresno	2010	LHD1	DSL	50	62493	526.86	526.86	0.273%
Fresno	2010	LHD1	GAS	55	24360	482.42	482.42	0.107%
Fresno	2010	LHD1	DSL	55	37634	526.86	526.86	0.165%
Fresno	2010	LHD2	GAS	5	1847	2513.50	2513.50	0.008%
Fresno	2010	LHD2	DSL	5	1945	527.22	527.22	0.009%
Fresno	2010	LHD2	GAS	10	4817	2036.13	2036.13	0.021%
Fresno	2010	LHD2	DSL	10	6469	527.22	527.22	0.028%
Fresno	2010	LHD2	GAS	15	10969	1392.43	1392.43	0.048%
Fresno	2010	LHD2	DSL	15	14011	527.22	527.22	0.061%
Fresno	2010	LHD2	GAS	20	12675	1006.07	1006.07	0.055%
Fresno	2010	LHD2	DSL	20	15360	527.22	527.22	0.067%
Fresno	2010	LHD2	GAS	25	9764	768.01	768.01	0.043%
Fresno	2010	LHD2	DSL	25	16439	527.22	527.22	0.072%
Fresno	2010	LHD2	GAS	30	8634	619.43	619.43	0.038%
Fresno	2010	LHD2	DSL	30	13877	527.22	527.22	0.061%
Fresno	2010	LHD2	GAS	35	3226	527.85	527.85	0.014%
Fresno	2010	LHD2	DSL	35	7323	527.22	527.22	0.032%
Fresno	2010	LHD2	GAS	40	952	475.23	475.23	0.004%
Fresno	2010	LHD2	DSL	40	4020	527.22	527.22	0.018%
Fresno	2010	LHD2	GAS	45	1172	452.06	452.06	0.005%
Fresno	2010	LHD2	DSL	45	4339	527.22	527.22	0.019%
Fresno	2010	LHD2	GAS	50	8657	454.32	454.32	0.038%
Fresno	2010	LHD2	DSL	50	16755	527.22	527.22	0.073%
Fresno	2010	LHD2	GAS	55	2381	482.42	482.42	0.010%
Fresno	2010	LHD2	DSL	55	10090	527.22	527.22	0.044%
Fresno	2010	MCY	GAS	5	11	240.29	240.29	0.000%
Fresno	2010	MCY	GAS	10	29	220.49	220.49	0.000%
Fresno	2010	MCY	GAS	15	27	188.67	188.67	0.000%
Fresno	2010	MCY	GAS	20	7097	164.91	164.91	0.031%
Fresno	2010	MCY	GAS	25	860	147.22	147.22	0.004%
Fresno	2010	MCY	GAS	30	2638	134.27	134.27	0.012%
Fresno	2010	MCY	GAS	35	10274	125.16	125.16	0.045%
Fresno	2010	MCY	GAS	40	19281	119.33	119.33	0.084%
Fresno	2010	MCY	GAS	45	16583	116.51	116.51	0.073%
Fresno	2010	MCY	GAS	50	22809	116.66	116.66	0.100%
Fresno	2010	MCY	GAS	55	16267	120.03	120.03	0.071%
Fresno	2010	MCY	GAS	60	19662	127.21	127.21	0.086%
Fresno	2010	MCY	GAS	65	19413	139.27	139.27	0.085%
Fresno	2010	MCY	GAS	70	17167	157.99	157.99	0.075%
Fresno	2010	MDV	GAS	5	296	1926.06	1919.59	0.001%
Fresno	2010	MDV	DSL	5	0	452.63	448.28	0.000%
Fresno	2010	MDV	GAS	10	804	1438.32	1433.48	0.004%
Fresno	2010	MDV	DSL	10	1	422.15	418.22	0.000%
Fresno	2010	MDV	GAS	15	763	1110.93	1107.19	0.003%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2010	MDV	DSL	15	1	376.32	373.03	0.000%
Fresno	2010	MDV	GAS	20	198189	880.06	877.10	0.867%
Fresno	2010	MDV	DSL	20	152	345.44	342.58	0.001%
Fresno	2010	MDV	GAS	25	24025	730.19	727.74	0.105%
Fresno	2010	MDV	DSL	25	18	325.38	322.80	0.000%
Fresno	2010	MDV	GAS	30	73655	628.47	626.36	0.322%
Fresno	2010	MDV	DSL	30	56	313.64	311.22	0.000%
Fresno	2010	MDV	GAS	35	286896	561.85	559.96	1.255%
Fresno	2010	MDV	DSL	35	220	308.83	306.48	0.001%
Fresno	2010	MDV	GAS	40	538426	520.17	518.42	2.355%
Fresno	2010	MDV	DSL	40	413	310.41	308.04	0.002%
Fresno	2010	MDV	GAS	45	463076	500.67	498.99	2.026%
Fresno	2010	MDV	DSL	45	355	318.54	316.06	0.002%
Fresno	2010	MDV	GAS	50	636932	500.15	498.46	2.786%
Fresno	2010	MDV	DSL	50	488	334.19	331.48	0.002%
Fresno	2010	MDV	GAS	55	454258	518.55	516.81	1.987%
Fresno	2010	MDV	DSL	55	348	359.22	356.17	0.002%
Fresno	2010	MDV	GAS	60	549067	557.58	555.71	2.402%
Fresno	2010	MDV	DSL	60	421	396.88	393.31	0.002%
Fresno	2010	MDV	GAS	65	542110	623.01	620.92	2.371%
Fresno	2010	MDV	DSL	65	415	452.43	448.08	0.002%
Fresno	2010	MDV	GAS	70	479397	667.78	665.53	2.097%
Fresno	2010	MDV	DSL	70	367	534.37	528.90	0.002%
Fresno	2010	MH	GAS	5	307	2513.50	2513.50	0.001%
Fresno	2010	MH	DSL	5	67	2376.97	2376.97	0.000%
Fresno	2010	MH	GAS	10	1543	2036.13	2036.13	0.007%
Fresno	2010	MH	DSL	10	334	2158.29	2158.29	0.001%
Fresno	2010	MH	GAS	15	1949	1392.43	1392.43	0.009%
Fresno	2010	MH	DSL	15	451	1772.14	1772.14	0.002%
Fresno	2010	MH	GAS	20	2021	1006.07	1006.07	0.009%
Fresno	2010	MH	DSL	20	479	1454.25	1454.25	0.002%
Fresno	2010	MH	GAS	25	2252	768.01	768.01	0.010%
Fresno	2010	MH	DSL	25	499	1304.38	1304.38	0.002%
Fresno	2010	MH	GAS	30	2547	619.43	619.43	0.011%
Fresno	2010	MH	DSL	30	599	1224.35	1224.35	0.003%
Fresno	2010	MH	GAS	35	3165	527.85	527.85	0.014%
Fresno	2010	MH	DSL	35	707	1157.94	1157.94	0.003%
Fresno	2010	MH	GAS	40	3940	475.23	475.23	0.017%
Fresno	2010	MH	DSL	40	877	1105.14	1105.14	0.004%
Fresno	2010	MH	GAS	45	3593	452.06	452.06	0.016%
Fresno	2010	MH	DSL	45	718	1065.96	1065.96	0.003%
Fresno	2010	MH	GAS	50	3497	454.32	454.32	0.015%
Fresno	2010	MH	DSL	50	804	1040.39	1040.39	0.004%
Fresno	2010	MH	GAS	55	4573	482.42	482.42	0.020%
Fresno	2010	MH	DSL	55	1178	1028.44	1028.44	0.005%
Fresno	2010	MH	GAS	60	5278	541.21	541.21	0.023%
Fresno	2010	MH	DSL	60	1416	1030.10	1030.10	0.006%
Fresno	2010	MH	GAS	65	825	641.50	641.50	0.004%
Fresno	2010	MH	DSL	65	223	1045.37	1045.37	0.001%
Fresno	2010	OBUS	GAS	5	211	2513.50	2513.50	0.001%
Fresno	2010	OBUS	DSL	5	143	3052.65	3052.65	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of
								Total VMT
Fresno	2010	OBUS	GAS	10	1062	2036.13	2036.13	0.005%
Fresno	2010	OBUS	DSL	10	660	2459.32	2459.32	0.003%
Fresno	2010	OBUS	GAS	15	1342	1392.43	1392.43	0.006%
Fresno	2010	OBUS	DSL	15	869	2001.78	2001.78	0.004%
Fresno	2010	OBUS	GAS	20	1392	1006.07	1006.07	0.006%
Fresno	2010	OBUS	DSL	20	1157	1695.25	1695.25	0.005%
Fresno	2010	OBUS	GAS	25	1551	768.01	768.01	0.007%
Fresno	2010	OBUS	DSL	25	1201	1580.12	1580.12	0.005%
Fresno	2010	OBUS	GAS	30	1754	619.43	619.43	0.008%
Fresno	2010	OBUS	DSL	30	1673	1537.77	1537.77	0.007%
Fresno	2010	OBUS	GAS	35	2179	527.85	527.85	0.010%
Fresno	2010	OBUS	DSL	35	2467	1519.45	1519.45	0.011%
Fresno	2010	OBUS	GAS	40	2713	475.23	475.23	0.012%
Fresno	2010	OBUS	DSL	40	2636	1410.01	1410.01	0.012%
Fresno	2010	OBUS	GAS	45	2474	452.06	452.06	0.011%
Fresno	2010	OBUS	DSL	45	2945	1434.26	1434.26	0.013%
Fresno	2010	OBUS	GAS	50	2408	454.32	454.32	0.011%
Fresno	2010	OBUS	DSL	50	3146	1390.38	1390.38	0.014%
Fresno	2010	OBUS	GAS	55	3149	482.42	482.42	0.014%
Fresno	2010	OBUS	DSL	55	4126	1350.21	1350.21	0.018%
Fresno	2010	OBUS	GAS	60	3634	541.21	541.21	0.016%
Fresno	2010	OBUS	DSL	60	2801	1175.03	1175.03	0.012%
Fresno	2010	OBUS	GAS	65	568	641.50	641.50	0.002%
Fresno	2010	OBUS	DSL	65	727	1355.23	1355.23	0.003%
Fresno	2010	SBUS	GAS	5	52	2513.50	2513.50	0.000%
Fresno	2010	SBUS	DSL	5	140	2638.70	2638.70	0.001%
Fresno	2010	SBUS	GAS	10	182	2036.13	2036.13	0.001%
Fresno	2010	SBUS	DSL	10	490	2179.77	2179.77	0.002%
Fresno	2010	SBUS	GAS	15	363	1392.43	1392.43	0.002%
Fresno	2010	SBUS	DSL	15	979	1789.78	1789.78	0.004%
Fresno	2010	SBUS	GAS	20	493	1006.07	1006.07	0.002%
Fresno	2010	SBUS	DSL	20	1329	1411.96	1411.96	0.006%
Fresno	2010	SBUS	GAS	25	779	768.01	768.01	0.003%
Fresno	2010	SBUS	DSL	25	2098	1317.39	1317.39	0.009%
Fresno	2010	SBUS	GAS	30	934	619.43	619.43	0.004%
Fresno	2010	SBUS	DSL	30	2518	1236.57	1236.57	0.011%
Fresno	2010	SBUS	GAS	35	959	527.85	527.85	0.004%
Fresno	2010	SBUS	DSL	35	2584	1169.50	1169.50	0.011%
Fresno	2010	SBUS	GAS	40	647	475.23	475.23	0.003%
Fresno	2010	SBUS	DSL	40	1744	1116.18	1116.18	0.008%
Fresno	2010	SBUS	GAS	45	311	452.06	452.06	0.001%
Fresno	2010	SBUS	DSL	45	837	1076.60	1076.60	0.004%
Fresno	2010	SBUS	GAS	50	156	454.32	454.32	0.001%
Fresno	2010	SBUS	DSL	50	419	1050.78	1050.78	0.002%
Fresno	2010	SBUS	GAS	55	231	482.42	482.42	0.001%
Fresno	2010	SBUS	DSL	55	624	1038.71	1038.71	0.003%
Fresno	2010	SBUS	GAS	60	129	541.21	541.21	0.001%
Fresno	2010	SBUS	DSL	60	347	1040.39	1040.39	0.002%
Fresno	2010	T6	GAS	5	427	2513.50	2513.50	0.002%
Fresno	2010	T6	DSL	5	2401	2610.34	2610.34	0.011%
Fresno	2010	T6	GAS	10	2146	2036.13	2036.13	0.009%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2010	T6	DSL	10	11950	2156.35	2156.35	0.052%
Fresno	2010	T6	GAS	15	2711	1392.43	1392.43	0.012%
Fresno	2010	T6	DSL	15	16128	1770.55	1770.55	0.071%
Fresno	2010	T6	GAS	20	2812	1006.07	1006.07	0.012%
Fresno	2010	T6	DSL	20	17104	1396.79	1396.79	0.075%
Fresno	2010	T6	GAS	25	3134	768.01	768.01	0.014%
Fresno	2010	T6	DSL	25	17813	1303.23	1303.23	0.078%
Fresno	2010	T6	GAS	30	3543	619.43	619.43	0.015%
Fresno	2010	T6	DSL	30	21419	1223.28	1223.28	0.094%
Fresno	2010	T6	GAS	35	4403	527.85	527.85	0.019%
Fresno	2010	T6	DSL	35	25256	1156.93	1156.93	0.110%
Fresno	2010	T6	GAS	40	5482	475.23	475.23	0.024%
Fresno	2010	T6	DSL	40	31351	1104.18	1104.18	0.137%
Fresno	2010	T6	GAS	45	4999	452.06	452.06	0.022%
Fresno	2010	T6	DSL	45	25673	1065.04	1065.04	0.112%
Fresno	2010	T6	GAS	50	4865	454.32	454.32	0.021%
Fresno	2010	T6	DSL	50	28732	1039.49	1039.49	0.126%
Fresno	2010	T6	GAS	55	6363	482.42	482.42	0.028%
Fresno	2010	T6	DSL	55	42104	1027.55	1027.55	0.184%
Fresno	2010	T6	GAS	60	7343	541.21	541.21	0.032%
Fresno	2010	T6	DSL	60	50595	1029.21	1029.21	0.221%
Fresno	2010	T6	GAS	65	1147	641.50	641.50	0.005%
Fresno	2010	T6	DSL	65	7962	1044.47	1044.47	0.035%
Fresno	2010	T7	GAS	5	30	2513.50	2513.50	0.000%
Fresno	2010	T7	DSL	5	5509	4024.00	4024.00	0.024%
Fresno	2010	T7	GAS	10	149	2036.13	2036.13	0.001%
Fresno	2010	T7	DSL	10	21043	3324.13	3324.13	0.092%
Fresno	2010	T7	GAS	15	163	1392.43	1392.43	0.001%
Fresno	2010	T7	DSL	15	25736	2729.40	2729.40	0.113%
Fresno	2010	T7	GAS	20	278	1006.07	1006.07	0.001%
Fresno	2010	T7	DSL	20	63851	2152.43	2152.43	0.279%
Fresno	2010	T7	GAS	25	363	768.01	768.01	0.002%
Fresno	2010	T7	DSL	25	58129	2009.01	2009.01	0.254%
Fresno	2010	T7	GAS	30	662	619.43	619.43	0.003%
Fresno	2010	T7	DSL	30	98137	1885.76	1885.76	0.429%
Fresno	2010	T7	GAS	35	1178	527.85	527.85	0.005%
Fresno	2010	T7	DSL	35	176552	1783.48	1783.48	0.772%
Fresno	2010	T7	GAS	40	1026	475.23	475.23	0.004%
Fresno	2010	T7	DSL	40	166614	1702.16	1702.16	0.729%
Fresno	2010	T7	GAS	45	1086	452.06	452.06	0.005%
Fresno	2010	T7	DSL	45	233270	1641.82	1641.82	1.020%
Fresno	2010	T7	GAS	50	1136	454.32	454.32	0.005%
Fresno	2010	T7	DSL	50	242595	1602.44	1602.44	1.061%
Fresno	2010	T7	GAS	55	1668	482.42	482.42	0.007%
Fresno	2010	T7	DSL	55	295829	1584.02	1584.02	1.294%
Fresno	2010	T7	GAS	60	412	541.21	541.21	0.002%
Fresno	2010	T7	DSL	60	90120	1586.58	1586.58	0.394%
Fresno	2010	T7	GAS	65	221	641.50	641.50	0.001%
Fresno	2010	T7	DSL	65	49361	1610.11	1610.11	0.216%
Fresno	2010	UBUS	GAS	5	127	2513.50	2513.50	0.001%
Fresno	2010	UBUS	DSL	5	314	2569.78	2569.78	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (Miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX(Pa) (gms/mile)	Percent of Total VMT
Fresno	2010	UBUS	GAS	10	457	2036.13	2036.13	0.002%
Fresno	2010	UBUS	DSL	10	1126	2569.78	2569.78	0.005%
Fresno	2010	UBUS	GAS	15	914	1392.43	1392.43	0.004%
Fresno	2010	UBUS	DSL	15	2253	2569.78	2569.78	0.010%
Fresno	2010	UBUS	GAS	20	1206	1006.07	1006.07	0.005%
Fresno	2010	UBUS	DSL	20	2973	2569.78	2569.78	0.013%
Fresno	2010	UBUS	GAS	25	1816	768.01	768.01	0.008%
Fresno	2010	UBUS	DSL	25	4478	2569.78	2569.78	0.020%
Fresno	2010	UBUS	GAS	30	2273	619.43	619.43	0.010%
Fresno	2010	UBUS	DSL	30	5604	2569.78	2569.78	0.025%
Fresno	2010	UBUS	GAS	35	2228	527.85	527.85	0.010%
Fresno	2010	UBUS	DSL	35	5492	2569.78	2569.78	0.024%
Fresno	2010	UBUS	GAS	40	1606	475.23	475.23	0.007%
Fresno	2010	UBUS	DSL	40	3959	2569.78	2569.78	0.017%
Fresno	2010	UBUS	GAS	45	700	452.06	452.06	0.003%
Fresno	2010	UBUS	DSL	45	1726	2569.78	2569.78	0.008%
Fresno	2010	UBUS	GAS	50	356	454.32	454.32	0.002%
Fresno	2010	UBUS	DSL	50	877	2569.78	2569.78	0.004%
Fresno	2010	UBUS	GAS	55	441	482.42	482.42	0.002%
Fresno	2010	UBUS	DSL	55	1087	2569.78	2569.78	0.005%
Fresno	2010	UBUS	GAS	60	722	541.21	541.21	0.003%
Fresno	2010	UBUS	DSL	60	1779	2569.78	2569.78	0.008%

Community Greenhouse Gas Inventory

Energy

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide	0.445	Used 2010 emission factor estimated by PG&E
Methane	0.000031	
Nitrous oxide	0.000011	

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions
			CO2	CH4	N2O	MTCO2e
Residential	1,422,450,000	2,610	316495	22.0	7.8	289,745
Commercial	1,570,085,283	7,503	349344	24.3	8.6	319,817
Industrial	*					0
Total	2,992,535,283		665,839	46.4	16.5	609,562

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions
			CO2	CH4	N2O	MTCO2e
Residential	75,210,000	138	439,979	41.4	0.8	400,169
Commercial	84,332,183	403	493,343	46.4	0.9	448,706
Industrial	*					0
Total	159,542,183		933,322	87.7	1.8	848,875

Notes and Sources:

*The Industrial kWh/year and therms/year is unavailable at this time.

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Usage and emission factors for carbon dioxide from: PG&E 2013. Pacific Gas and Electric Company. ; PG&E. 2013. Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

Community Greenhouse Gas Inventory Offroad Equipment

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO ₂ e
		CO ₂	CH ₄	N ₂ O	
Fresno County	930,000	1,019	0.1600	0.0100	930
Fresno	545,000	597	0	0	545
Percent Fresno/Fresno County	58.6%				

Other Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO ₂ e
		CO ₂	CH ₄	N ₂ O	
Fresno County	930,000	920	0.360	0.08000	864
Fresno	545,000	539	0	0	506
Percent Fresno/Fresno County	58.6%				

Total Fresno 1,051

Notes:

Emissions for Fresno County are from OFFROAD2007 for the year assessed; emissions from Fresno are apportioned based on population.

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2010

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

Emissions (MMTCO ₂ e)	18.69
Population	37,253,956
Emissions (MTCO ₂ e per person)	0.50

Fresno

Population	545,000
Emissions (MTCO ₂ e per person)	273,422
(estimated by using California per person emissions)	

Sources/Notes:

California Emissions from: California Air Resources Board. 2010. California GHG Emissions - Forecast (2008-2020) Website:
http://www.arb.ca.gov/cc/inventory/data/tables/2020_ghg_emissions_forecast_2010-10-28.pdf
Accessed August 19, 2013.

California Population from: Census Bureau. 2010. Population Quick-Facts. Website:
<http://quickfacts.census.gov/qfd/states/06000.html>. Accessed August 19, 2013.

Community Greenhouse Gas Inventory

Summary

Year: 2020

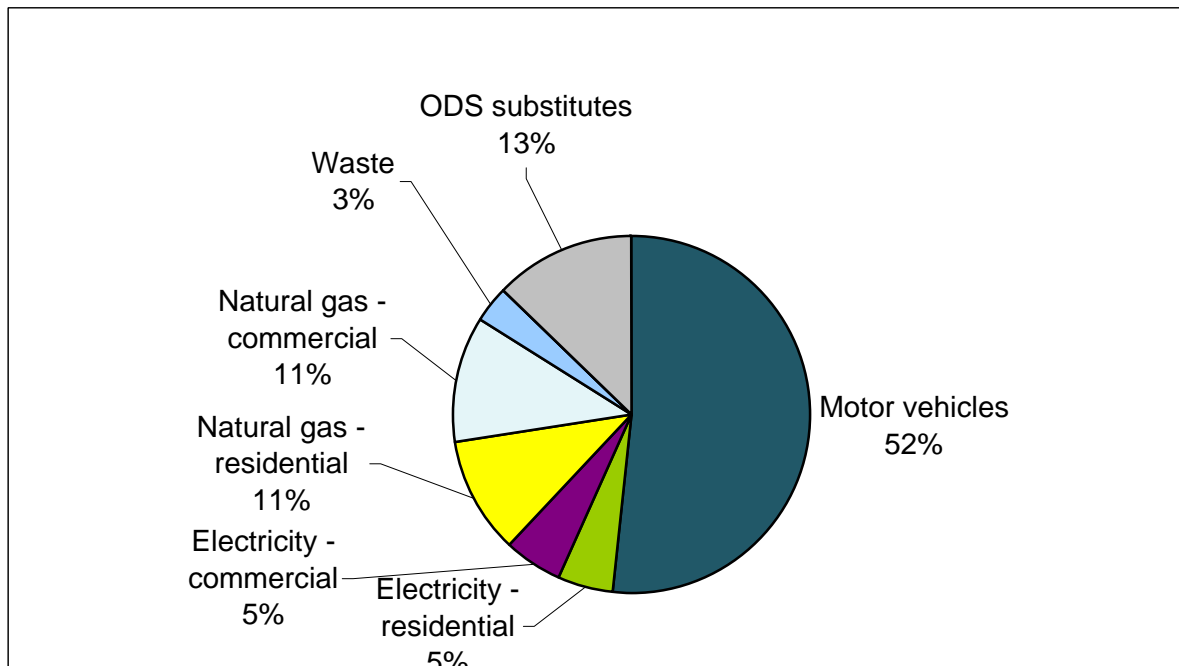
Prepared by FirstCarbon Solutions

	Data	Source
City Information		
Population	649,200	Fresno COG
Employment	240,014	
County Information		
Population	1,082,000	Fresno COG

-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050. Produced under contract by: The Planning Center|DC&E. March 2012.

-Employment: Took the 2010 population (545,000) and 2010 employment (183,825) and cross multiplied with the 2020 population (649,200) and the 2020 employment number (X).

Emissions (MTCO₂e/year)	Without Regulation	With Pavley I and LCFS
Motor vehicles	2,337,015	1,828,249
Electricity - residential	226,011	226,011
Electricity - commercial	240,205	240,205
Natural gas - residential	476,679	476,679
Natural gas - commercial	514,647	514,647
Waste	147,628	147,628
Offroad equipment	1,138	1,138
ODS substitutes	576,784	576,784
<u>Total</u>	<u>4,520,107</u>	4,011,341



Community Greenhouse Gas Inventory

Waste

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Emissions

Emissions (MTCO ₂ e)*	147,628	
Emissions (MTCO ₂ e/person)	0.2274	2010 waste emissions per person

Notes:

*Emissions were calculated by multiplying the 2010 per capita rate by the population for this year.

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without regulation)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **11,149,323** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 4,069,502,895 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	800	0	800	5
5 - 10 MPH	665	778	0	1,443	5
10 - 15 MPH	129,603	167,298	355,800	652,701	10
15 - 20 MPH	4,379	6,480	6,845	17,704	15
20 - 25 MPH	19,163	32,031	54,608	105,802	20
25 - 30 MPH	78,269	103,641	225,197	407,107	25
30 - 35 MPH	86,745	137,277	171,480	395,502	30
35 - 40 MPH	510,988	662,086	1,334,132	2,507,207	35
40 - 45 MPH	228,515	278,844	612,561	1,119,920	40
45 - 50 MPH	194,394	256,153	754,432	1,204,979	45
50 - 55 MPH	105,138	148,518	357,499	611,155	50
55 - 60 MPH	466,648	554,845	1,312,348	2,333,841	55
60 - 65 MPH	447,361	555,735	1,131,920	2,135,016	60
65 - 70 MPH	25	33	89	147	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,271,891	2,904,520	6,316,912	11,493,323	

Source:
 Fehr and Peers. 2013. 2020 VMT was found by using multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 10 years of VMT growth between 2010 and 2020 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $(((2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years}) = .0248)$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2243	652701	17704	105802	407107	395502	2507207	1119920	1204979	611155	2333841	2135016	147	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	EMFAC2011 VMT %	DSL	% Includes
GAS			
LDA	43.63%	0.12%	GAS Heavy duty 0.7% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.37%	0.01%	Light trucks 42.6% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.31%	0.01%	Passenger 44.3% LDA, MCY
LHD1	2.66%	1.62%	DSL Heavy duty 10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.44%	Light trucks 2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.66%	0.00%	Passenger 0.1% LDA, MCY
MDV	16.99%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.09%	0.12%	
SBUS	0.02%	0.05%	
T6	0.31%	1.66%	
T7	0.04%	8.23%	
UBUS	0.05%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1130	835	641	514	428	368	328	304	292	292	303	326	364	390	0
LDT1		1305	964	741	594	495	425	379	351	338	337	350	376	420	451	0
LDT2		1536	1135	872	699	582	500	446	413	397	397	412	443	495	530	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		264	240	203	177	159	147	140	137	139	145	158	177	206	251	0
MDV		1957	1446	1111	890	742	637	569	526	506	506	525	564	630	676	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions (without regulation)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		487	444	378	335	306	289	282	285	296	319	354	408	487	603	0
LDT1		486	444	380	338	310	293	287	289	300	322	357	409	486	600	0
LDT2		484	441	378	335	308	291	285	287	298	320	354	407	483	597	0
LHD1		521	521	521	521	521	521	521	521	521	521	521	0	0	0	0
LHD2		521	521	521	521	521	521	521	521	521	521	521	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		490	446	380	336	307	290	283	285	297	319	355	410	490	608	0
MH		2390	2170	1782	1462	1312	1231	1164	1111	1072	1046	1034	1036	1051	0	0
OBUS		3024	2435	1982	1680	1566	1524	1507	1398	1423	1379	1339	1164	1344	0	0
SBUS		2632	2174	1785	1408	1314	1234	1167	1113	1074	1048	1036	1038	0	0	0
T6		2578	2130	1749	1379	1287	1208	1143	1090	1052	1027	1015	1016	1031	0	0
T7		3978	3286	2698	2130	1986	1864	1763	1683	1623	1584	1566	1568	1592	0	0
UBUS		2441	2441	2441	2441	2441	2441	2441	2441	2441	2441	2441	2441	2441	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		979	284768	7724	46161	177617	172554	1093872	488611	525722	266641	1018234	931488	64	0	0
LDT1		143	41599	1128	6743	25947	25207	159795	71377	76799	38952	148746	136074	9	0	0
LDT2		366	106452	2887	17256	66397	64504	408913	182654	196526	99676	380638	348211	24	0	0
LHD1		60	17388	472	2819	10845	10536	66793	29835	32101	16281	62174	56877	4	0	0
LHD2		6	1777	48	288	1109	1077	6828	3050	3281	1664	6356	5814	0	0	0
MCY		15	4329	117	702	2700	2623	16630	7428	7993	4054	15480	14161	1	0	0
MDV		381	110904	3008	17977	69174	67202	426013	190292	204744	103845	396555	362772	25	0	0
MH		3	1003	27	163	626	608	3853	1721	1852	939	3587	3281	0	0	0
OBUS		2	596	16	97	371	361	2288	1022	1100	558	2130	1948	0	0	0
SBUS		0	135	4	22	84	82	520	232	250	127	484	442	0	0	0
T6		7	2022	55	328	1261	1225	7768	3470	3733	1893	7231	6615	0	0	0
T7		1	286	8	46	178	173	1099	491	528	268	1023	935	0	0	0
UBUS		1	332	9	54	207	201	1275	569	613	311	1187	1086	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		3	789	21	128	492	478	3029	1353	1456	738	2820	2580	0	0	0
LDT1		0	55	1	9	34	33	212	95	102	52	197	180	0	0	0
LDT2		0	50	1	8	31	30	192	86	93	47	179	164	0	0	0
LHD1		36	10595	287	1717	6608	6420	40699	18179	19560	9921	37885	34657	2	0	0
LHD2		10	2842	77	461	1773	1722	10918	4877	5247	2661	10163	9297	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	87	2	14	54	52	332	148	160	81	309	283	0	0	0
MH		1	214	6	35	134	130	822	367	395	200	766	700	0	0	0
OBUS		3	753	20	122	469	456	2891	1292	1390	705	2691	2462	0	0	0
SBUS		1	358	10	58	223	217	1375	614	661	335	1280	1171	0	0	0
T6		37	10851	294	1759	6768	6575	41683	18619	20033	10161	38801	35495	2	0	0
T7		185	53697	1456	8704	33492	32537	206264	92134	99132	50279	192002	175645	12	0	0
UBUS		3	818	22	133	510	496	3142	1404	1510	766	2925	2676	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		444	95,444	1,988	9,526	30,550	25,468	144,160	59,580	61,685	31,272	123,830	121,830	9	0	0	705,341
LDT1		75	16,108	336	1,608	5,154	4,298	24,327	10,055	10,411	5,278	20,898	20,561	2	0	0	119,035
LDT2		226	48,522	1,011	4,843	15,528	12,946	73,283	30,289	31,360	15,898	62,951	61,935	5	0	0	358,571
LHD1		60	14,215	264	1,139	3,344	2,620	14,155	5,693	5,826	2,970	12,042	0	0	0	0	62,268

Community Greenhouse Gas Inventory

Motor Vehicle Emissions (without regulation)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	6	1,453	27	116	342	268	1,447	582	596	304	1,231	0	0	0	0	6,365
MCY	2	417	10	50	173	155	934	409	446	237	979	1,006	0	0	0	4,816
MDV	299	64,398	1,341	6,427	20,607	17,181	97,257	40,199	41,620	21,099	83,547	82,199	6	0	0	475,881
MH	3	820	15	66	193	151	817	328	336	171	695	713	0	0	0	4,305
OBUS	2	487	9	39	115	90	485	195	200	102	412	423	0	0	0	2,556
SBUS	0	111	2	9	26	20	110	44	45	23	94	96	0	0	0	580
T6	7	1,653	31	132	389	305	1,646	662	678	345	1,400	1,437	0	0	0	8,679
T7	1	234	4	19	55	43	233	94	96	49	198	203	0	0	0	1,227
UBUS	1	271	5	22	64	50	270	109	111	57	230	236	0	0	0	1,424
Total	1,127	244,134	5,042	23,994	76,539	63,595	359,124	148,240	153,409	77,803	308,508	290,640	22	0	0	1,752,177
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	140	3	17	60	56	344	155	173	94	401	422	0	0	0	1,866
LDT1	0	10	0	1	4	4	24	11	12	7	28	30	0	0	0	132
LDT2	0	9	0	1	4	4	22	10	11	6	25	27	0	0	0	119
LHD1	8	2,218	60	360	1,384	1,344	8,521	3,806	4,095	2,077	7,931	0	0	0	0	31,796
LHD2	2	595	16	96	371	360	2,285	1,021	1,098	557	2,127	0	0	0	0	8,528
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	16	0	2	7	6	38	17	19	10	44	47	0	0	0	205
MH	1	187	4	20	70	64	384	164	170	84	318	291	0	0	0	1,757
OBUS	3	736	16	82	295	279	1,749	725	794	390	1,447	1,150	0	0	0	7,664
SBUS	1	313	7	33	118	107	644	275	285	141	532	488	0	0	0	2,943
T6	39	9,278	207	974	3,497	3,189	19,121	8,152	8,460	4,188	15,808	14,485	1	0	0	87,360
T7	295	70,843	1,578	7,442	26,705	24,352	146,004	62,243	64,597	31,977	120,709	110,604	8	0	0	667,062
UBUS	3	802	22	130	500	486	3,080	1,376	1,480	751	2,867	2,622	0	0	0	14,114
Total	351	85,146	1,914	9,159	33,016	30,252	182,216	77,953	81,194	40,283	152,239	130,166	9	0	0	823,898

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	2,576,074	2,337,015	2,337,015

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **11,435,514** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 4,173,962,610 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.48% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	796	0	796	5
5 - 10 MPH	661	774	0	1,435	5
10 - 15 MPH	128,951	166,457	354,011	649,418	10
15 - 20 MPH	4,357	6,447	6,811	17,615	15
20 - 25 MPH	19,066	31,870	54,334	105,270	20
25 - 30 MPH	77,876	103,120	224,064	405,060	25
30 - 35 MPH	86,309	136,586	170,618	393,513	30
35 - 40 MPH	508,418	658,756	1,327,422	2,494,596	35
40 - 45 MPH	227,365	277,442	609,480	1,114,287	40
45 - 50 MPH	193,416	254,865	750,637	1,198,918	45
50 - 55 MPH	104,609	147,771	355,701	608,081	50
55 - 60 MPH	464,301	552,054	1,305,747	2,322,102	55
60 - 65 MPH	445,111	552,939	1,126,227	2,124,277	60
65 - 70 MPH	25	32	89	146	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,260,464	2,889,911	6,285,139	11,435,514	

Source:
 Fehr and Peers. 2013. 2020 VMT was found by using multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 10 years of VMT growth between 2010 and 2020 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $[(2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years} = .0248]$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2232	649418	17615	105270	405060	393513	2494596	1114287	1198918	608081	2322102	2124277	146	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.63%	0.12%	0.7% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.37%	0.01%	42.6% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.31%	0.01%	44.3% LDA, MCY
LHD1	2.66%	1.62%	10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.44%	2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.66%	0.00%	0.1% LDA, MCY
MDV	16.99%	0.01%	
MH	0.15%	0.03%	
OBUS	0.09%	0.12%	
SBUS	0.02%	0.05%	
T6	0.31%	1.66%	
T7	0.04%	8.23%	
UBUS	0.05%	0.13%	
Total			100.0%

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		766	566	434	348	290	249	222	206	198	198	205	221	246	264	0
LDT1		926	684	525	421	351	301	269	249	240	239	248	267	298	320	0
LDT2		1144	845	649	520	434	372	332	308	296	296	307	330	368	395	0
LHD1		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
LHD2		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
MCY		237	216	183	160	143	132	126	124	125	131	142	159	186	225	0
MDV		1526	1128	866	694	579	497	443	410	395	395	409	440	491	527	0
MH		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
OBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
SBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
T6		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
T7		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		330	301	258	230	211	200	195	197	205	219	243	278	330	406	0
LDT1		324	297	256	229	211	201	197	198	205	219	241	275	324	396	0
LDT2		353	323	278	248	228	216	212	213	221	237	261	298	353	433	0
LHD1		469	469	469	469	469	469	469	469	469	469	469	0	0	0	0
LHD2		469	469	469	469	469	469	469	469	469	469	469	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		377	344	294	260	238	225	220	221	230	247	275	316	377	467	0
MH		2151	1953	1604	1316	1180	1108	1048	1000	965	942	931	932	946	0	0
OBUS		2721	2192	1784	1512	1409	1372	1356	1258	1280	1241	1205	1047	1209	0	0
SBUS		2369	1957	1607	1268	1183	1110	1050	1002	967	943	933	934	0	0	0
T6		2320	1917	1574	1241	1158	1087	1028	981	947	924	913	915	928	0	0
T7		3580	2957	2428	1917	1787	1678	1587	1514	1461	1426	1409	1412	1432	0	0
UBUS		2197	2197	2197	2197	2197	2197	2197	2197	2197	2197	2197	2197	2197	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		974	283335	7685	45928	176724	171686	1088370	486153	523077	265300	1013113	926803	64	0	0
LDT1		142	41390	1123	6709	25816	25080	158991	71018	76412	38756	147998	135389	9	0	0
LDT2		364	105917	2873	17169	66063	64180	406857	181735	195538	99175	378724	346459	24	0	0
LHD1		59	17301	469	2804	10791	10483	66457	29685	31939	16199	61861	56591	4	0	0
LHD2		6	1769	48	287	1103	1072	6793	3035	3265	1656	6324	5785	0	0	0
MCY		15	4308	117	698	2687	2610	16547	7391	7952	4033	15402	14090	1	0	0
MDV		379	110346	2993	17887	68826	66864	423870	189334	203715	103322	394561	360947	25	0	0
MH		3	998	27	162	622	605	3834	1712	1843	935	3569	3265	0	0	0
OBUS		2	593	16	96	370	359	2276	1017	1094	555	2119	1938	0	0	0
SBUS		0	135	4	22	84	82	517	231	248	126	481	440	0	0	0
T6		7	2012	55	326	1255	1219	7729	3452	3714	1884	7194	6581	0	0	0
T7		1	285	8	46	177	172	1093	488	525	266	1017	931	0	0	0
UBUS		1	330	9	54	206	200	1268	567	610	309	1181	1080	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		3	785	21	127	489	475	3014	1346	1449	735	2806	2567	0	0	0
LDT1		0	55	1	9	34	33	211	94	101	51	196	179	0	0	0
LDT2		0	50	1	8	31	30	191	86	92	47	178	163	0	0	0
LHD1		36	10542	286	1709	6575	6388	40494	18088	19462	9871	37694	34483	2	0	0
LHD2		10	2828	77	458	1764	1714	10863	4852	5221	2648	10112	9251	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	86	2	14	54	52	331	148	159	81	308	282	0	0	0
MH		1	213	6	35	133	129	818	366	393	199	762	697	0	0	0
OBUS		3	749	20	121	467	454	2877	1285	1383	701	2678	2450	0	0	0
SBUS		1	356	10	58	222	216	1368	611	658	333	1274	1165	0	0	0
T6		37	10797	293	1750	6734	6542	41473	18525	19932	10109	38605	35316	2	0	0
T7		184	53427	1449	8660	33324	32374	205227	91671	98633	50026	191036	174761	12	0	0
UBUS		3	814	22	132	508	493	3127	1397	1503	762	2910	2662	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		299	64,357	1,340	6,423	20,598	17,172	97,203	40,174	41,593	21,086	83,497	82,148	6	0	0	475,598
LDT1		53	11,371	237	1,135	3,638	3,034	17,172	7,098	7,349	3,725	14,751	14,514	1	0	0	84,024
LDT2		167	35,950	749	3,588	11,504	9,592	54,294	22,441	23,234	11,778	46,640	45,887	4	0	0	265,661
LHD1		54	12,729	236	1,020	2,995	2,346	12,676	5,098	5,217	2,659	10,784	0	0	0	0	55,760

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	6	1,301	24	104	306	240	1,296	521	533	272	1,102	0	0	0	0	5,700
MCY	1	374	9	45	154	139	836	367	399	212	877	901	0	0	0	4,313
MDV	232	49,971	1,041	4,987	15,990	13,332	75,468	31,193	32,296	16,372	64,829	63,783	5	0	0	369,266
MH	3	734	14	59	173	135	731	294	301	153	622	638	0	0	0	3,855
OBUS	2	436	8	35	103	80	434	175	179	91	369	379	0	0	0	2,289
SBUS	0	99	2	8	23	18	99	40	41	21	84	86	0	0	0	520
T6	6	1,480	27	119	348	273	1,474	593	607	309	1,254	1,287	0	0	0	7,772
T7	1	209	4	17	49	39	208	84	86	44	177	182	0	0	0	1,099
UBUS	1	243	5	19	57	45	242	97	100	51	206	211	0	0	0	1,275
Total	826	179,254	3,695	17,557	55,939	46,445	262,133	108,174	111,934	56,774	225,193	210,018	16	0	0	1,277,958
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	0	95	2	12	41	38	237	106	119	65	273	286	0	0	0	1,274
LDT1	0	7	0	1	3	3	17	7	8	5	19	20	0	0	0	89
LDT2	0	6	0	1	3	3	16	7	8	4	19	20	0	0	0	87
LHD1	7	1,986	54	322	1,239	1,204	7,630	3,408	3,667	1,860	7,102	0	0	0	0	28,472
LHD2	2	533	14	86	332	323	2,046	914	984	499	1,905	0	0	0	0	7,636
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	12	0	1	5	5	29	13	15	8	34	36	0	0	0	158
MH	1	167	4	18	63	57	344	147	152	75	285	261	0	0	0	1,574
OBUS	3	659	15	74	264	250	1,566	649	711	349	1,296	1,030	0	0	0	6,863
SBUS	1	280	6	29	105	96	577	246	255	126	477	437	0	0	0	2,635
T6	35	8,308	185	872	3,132	2,856	17,122	7,300	7,576	3,750	14,156	12,971	1	0	0	78,229
T7	264	63,438	1,413	6,664	23,914	21,807	130,742	55,737	57,845	28,635	108,092	99,043	7	0	0	597,336
UBUS	2	718	19	116	448	435	2,758	1,232	1,325	672	2,567	2,348	0	0	0	12,639
Total	315	76,209	1,713	8,198	29,550	27,076	163,085	69,767	72,664	36,048	136,224	116,451	8	0	0	737,308

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	2,015,266	1,828,249	1,828,249

EMFAC 2011
 2020 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter:
 region - County: Fresno, year - 2020, season - annual average,
 vehicle category - EMFAC2007, model year - aggregated,
 speed - all speeds, fuel - all) Website:
<http://www.arb.ca.gov/emfac/>

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	LDA	GAS	5	1097.601204	1129.5953	765.503158	0.004%
Fresno	2020	LDA	DSL	5	3.039576937	487.08109	329.765357	0.000%
Fresno	2020	LDA	GAS	10	19368.49589	834.77968	565.727079	0.068%
Fresno	2020	LDA	DSL	10	53.63699778	443.70668	301.292224	0.000%
Fresno	2020	LDA	GAS	15	9051.364273	640.94058	434.371007	0.032%
Fresno	2020	LDA	DSL	15	25.06585843	378.48579	258.477977	0.000%
Fresno	2020	LDA	GAS	20	570961.7421	513.96372	348.309075	2.019%
Fresno	2020	LDA	DSL	20	1581.159357	334.54556	229.633409	0.006%
Fresno	2020	LDA	GAS	25	115652.1287	428.38541	290.303306	0.409%
Fresno	2020	LDA	DSL	25	320.2743836	306.00044	210.894972	0.001%
Fresno	2020	LDA	GAS	30	266829.8871	367.60468	249.119316	0.943%
Fresno	2020	LDA	DSL	30	738.9295648	289.29397	199.928012	0.003%
Fresno	2020	LDA	GAS	35	920286.3609	328.24025	222.443474	3.254%
Fresno	2020	LDA	DSL	35	2548.5404	282.45305	195.437288	0.009%
Fresno	2020	LDA	GAS	40	1530953.789	303.70517	205.819413	5.413%
Fresno	2020	LDA	DSL	40	4239.656111	284.69426	196.908534	0.015%
Fresno	2020	LDA	GAS	45	1340675.525	292.23901	198.049009	4.740%
Fresno	2020	LDA	DSL	45	3712.720433	296.27271	204.509208	0.013%
Fresno	2020	LDA	GAS	50	1834855.081	292.10301	197.955884	6.487%
Fresno	2020	LDA	DSL	50	5081.247577	318.53069	219.120456	0.018%
Fresno	2020	LDA	GAS	55	1221758.238	302.89634	205.27008	4.319%
Fresno	2020	LDA	DSL	55	3383.404003	354.16085	242.509876	0.012%
Fresno	2020	LDA	GAS	60	1512183.811	325.75529	220.762098	5.346%
Fresno	2020	LDA	DSL	60	4187.676879	407.75495	277.691718	0.015%
Fresno	2020	LDA	GAS	65	1544869.267	363.73237	246.499166	5.462%
Fresno	2020	LDA	DSL	65	4278.192318	486.79924	329.580336	0.015%
Fresno	2020	LDA	GAS	70	1451953.777	390.01281	264.308173	5.133%
Fresno	2020	LDA	DSL	70	4020.882357	603.41836	406.134954	0.014%
Fresno	2020	LDT1	GAS	5	160.3399232	1304.7967	925.652415	0.001%
Fresno	2020	LDT1	DSL	5	0.212505042	486.45442	323.971419	0.000%
Fresno	2020	LDT1	GAS	10	2829.391349	964.45342	684.23582	0.010%
Fresno	2020	LDT1	DSL	10	3.749907629	444.12974	296.951752	0.000%
Fresno	2020	LDT1	GAS	15	1322.24271	740.61424	525.449186	0.005%
Fresno	2020	LDT1	DSL	15	1.752421886	380.48738	256.32308	0.000%
Fresno	2020	LDT1	GAS	20	83407.31561	593.77137	421.24901	0.295%
Fresno	2020	LDT1	DSL	20	110.5431162	337.6106	228.950955	0.000%
Fresno	2020	LDT1	GAS	25	16894.71195	494.765	350.98776	0.060%
Fresno	2020	LDT1	DSL	25	22.39124832	309.75632	211.169055	0.000%
Fresno	2020	LDT1	GAS	30	38979.08188	424.63836	301.25086	0.138%
Fresno	2020	LDT1	DSL	30	51.6605658	293.45418	200.761924	0.000%
Fresno	2020	LDT1	GAS	35	134437.4047	379.17701	269.000862	0.475%
Fresno	2020	LDT1	DSL	35	178.1753487	286.77884	196.500452	0.001%
Fresno	2020	LDT1	GAS	40	223644.9863	350.87622	248.929757	0.791%
Fresno	2020	LDT1	DSL	40	296.4058539	288.9658	197.896581	0.001%
Fresno	2020	LDT1	GAS	45	195848.7412	337.63129	239.533452	0.692%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	LDT1	DSL	45	259.5663607	300.26399	205.109234	0.001%
Fresno	2020	LDT1	GAS	50	268039.5871	337.46078	239.410422	0.948%
Fresno	2020	LDT1	DSL	50	355.2437845	321.98332	218.97465	0.001%
Fresno	2020	LDT1	GAS	55	178477.0744	349.92509	248.252412	0.631%
Fresno	2020	LDT1	DSL	55	236.5429175	356.75116	241.170106	0.001%
Fresno	2020	LDT1	GAS	60	220903.0487	376.34322	266.996146	0.781%
Fresno	2020	LDT1	DSL	60	292.7718184	409.04819	274.556024	0.001%
Fresno	2020	LDT1	GAS	65	225677.8211	420.22158	298.126155	0.798%
Fresno	2020	LDT1	DSL	65	299.1000053	486.17935	323.795817	0.001%
Fresno	2020	LDT1	GAS	70	212104.5317	450.56841	319.653386	0.750%
Fresno	2020	LDT1	DSL	70	281.110744	599.97604	396.44253	0.001%
Fresno	2020	LDT2	GAS	5	410.3073308	1536.0292	1143.76708	0.001%
Fresno	2020	LDT2	DSL	5	0.193123223	483.63558	352.949647	0.000%
Fresno	2020	LDT2	GAS	10	7240.367106	1135.2759	845.371167	0.026%
Fresno	2020	LDT2	DSL	10	3.40789224	441.45895	322.997862	0.000%
Fresno	2020	LDT2	GAS	15	3383.597905	871.73757	649.13865	0.012%
Fresno	2020	LDT2	DSL	15	1.59258996	378.03921	277.960266	0.000%
Fresno	2020	LDT2	GAS	20	213437.9851	698.95406	520.466327	0.755%
Fresno	2020	LDT2	DSL	20	100.4608962	335.3124	247.617766	0.000%
Fresno	2020	LDT2	GAS	25	43233.29642	582.47638	433.722102	0.153%
Fresno	2020	LDT2	DSL	25	20.34902432	307.5556	227.906247	0.000%
Fresno	2020	LDT2	GAS	30	99746.85881	499.88306	372.227237	0.353%
Fresno	2020	LDT2	DSL	30	46.94879405	291.3105	216.369771	0.000%
Fresno	2020	LDT2	GAS	35	344023.1716	446.36108	332.374045	1.216%
Fresno	2020	LDT2	DSL	35	161.9246321	284.65849	211.645838	0.001%
Fresno	2020	LDT2	GAS	40	572303.9925	413.02584	307.554824	2.023%
Fresno	2020	LDT2	DSL	40	269.3717451	286.83782	213.193489	0.001%
Fresno	2020	LDT2	GAS	45	501173.8359	397.43382	295.94458	1.772%
Fresno	2020	LDT2	DSL	45	235.8922431	298.09651	221.188859	0.001%
Fresno	2020	LDT2	GAS	50	685909.0183	397.23953	295.798871	2.425%
Fresno	2020	LDT2	DSL	50	322.8433094	319.73983	236.558891	0.001%
Fresno	2020	LDT2	GAS	55	456719.9404	411.91427	306.725826	1.615%
Fresno	2020	LDT2	DSL	55	214.9687115	354.38602	261.162921	0.001%
Fresno	2020	LDT2	GAS	60	565287.3873	443.00751	329.879711	1.999%
Fresno	2020	LDT2	DSL	60	266.0691583	406.50012	298.171814	0.001%
Fresno	2020	LDT2	GAS	65	577505.9743	494.65656	368.339783	2.042%
Fresno	2020	LDT2	DSL	65	271.8201986	483.36142	352.754954	0.001%
Fresno	2020	LDT2	GAS	70	542772.0652	530.38611	394.944181	1.919%
Fresno	2020	LDT2	DSL	70	255.4716835	596.75996	433.28506	0.001%
Fresno	2020	LHD1	GAS	5	21384.31271	2513.4972	2262.14749	0.076%
Fresno	2020	LHD1	DSL	5	8073.831436	521.44003	469.296029	0.029%
Fresno	2020	LHD1	GAS	10	55761.32258	2036.1281	1832.51532	0.197%
Fresno	2020	LHD1	DSL	10	26849.16852	521.44005	469.296042	0.095%
Fresno	2020	LHD1	GAS	15	126976.0519	1392.4297	1253.1867	0.449%
Fresno	2020	LHD1	DSL	15	58147.60848	521.44	469.296003	0.206%
Fresno	2020	LHD1	GAS	20	146719.8434	1006.0686	905.461733	0.519%
Fresno	2020	LHD1	DSL	20	63748.56088	521.43999	469.295993	0.225%
Fresno	2020	LHD1	GAS	25	113019.5197	768.01205	691.210844	0.400%
Fresno	2020	LHD1	DSL	25	68227.96575	521.44	469.295996	0.241%
Fresno	2020	LHD1	GAS	30	99946.34197	619.4336	557.490237	0.353%
Fresno	2020	LHD1	DSL	30	57593.04709	521.44001	469.296005	0.204%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	LHD1	GAS	35	37346.32043	527.84649	475.061842	0.132%
Fresno	2020	LHD1	DSL	35	30394.08805	521.44001	469.296012	0.107%
Fresno	2020	LHD1	GAS	40	11023.78163	475.23318	427.709861	0.039%
Fresno	2020	LHD1	DSL	40	16685.3603	521.44002	469.296021	0.059%
Fresno	2020	LHD1	GAS	45	13571.24509	452.05583	406.850248	0.048%
Fresno	2020	LHD1	DSL	45	18008.9918	521.44002	469.296015	0.064%
Fresno	2020	LHD1	GAS	50	100208.1816	454.3218	408.889624	0.354%
Fresno	2020	LHD1	DSL	50	69538.42058	521.44004	469.296036	0.246%
Fresno	2020	LHD1	GAS	55	27561.98152	482.41547	434.173925	0.097%
Fresno	2020	LHD1	DSL	55	41876.66483	521.43999	469.295994	0.148%
Fresno	2020	LHD2	GAS	5	2185.999834	2513.4972	2262.14751	0.008%
Fresno	2020	LHD2	DSL	5	2165.940834	521.32551	469.192959	0.008%
Fresno	2020	LHD2	GAS	10	5700.171632	2036.1281	1832.51531	0.020%
Fresno	2020	LHD2	DSL	10	7202.740987	521.32545	469.192908	0.025%
Fresno	2020	LHD2	GAS	15	12980.05837	1392.4297	1253.18673	0.046%
Fresno	2020	LHD2	DSL	15	15599.07284	521.32548	469.192929	0.055%
Fresno	2020	LHD2	GAS	20	14998.35728	1006.0684	905.461596	0.053%
Fresno	2020	LHD2	DSL	20	17101.62232	521.3255	469.192951	0.060%
Fresno	2020	LHD2	GAS	25	11553.35919	768.01208	691.210875	0.041%
Fresno	2020	LHD2	DSL	25	18303.29766	521.32547	469.192927	0.065%
Fresno	2020	LHD2	GAS	30	10216.96052	619.4336	557.490236	0.036%
Fresno	2020	LHD2	DSL	30	15450.30236	521.32548	469.192934	0.055%
Fresno	2020	LHD2	GAS	35	3817.707199	527.84656	475.061906	0.013%
Fresno	2020	LHD2	DSL	35	8153.724442	521.32547	469.192923	0.029%
Fresno	2020	LHD2	GAS	40	1126.900176	475.23317	427.709853	0.004%
Fresno	2020	LHD2	DSL	40	4476.12821	521.32553	469.192978	0.016%
Fresno	2020	LHD2	GAS	45	1387.31323	452.05583	406.850248	0.005%
Fresno	2020	LHD2	DSL	45	4831.21426	521.32552	469.192968	0.017%
Fresno	2020	LHD2	GAS	50	10243.72797	454.32179	408.889615	0.036%
Fresno	2020	LHD2	DSL	50	18654.84861	521.32553	469.192974	0.066%
Fresno	2020	LHD2	GAS	55	2817.508813	482.4155	434.173947	0.010%
Fresno	2020	LHD2	DSL	55	11234.11873	521.32552	469.192971	0.040%
Fresno	2020	MCY	GAS	5	16.68688392	263.60959	237.248635	0.000%
Fresno	2020	MCY	GAS	10	294.4601557	239.987	215.988302	0.001%
Fresno	2020	MCY	GAS	15	137.6083261	203.31025	182.979225	0.000%
Fresno	2020	MCY	GAS	20	8680.359343	177.28794	159.559145	0.031%
Fresno	2020	MCY	GAS	25	1758.264929	159.11187	143.200685	0.006%
Fresno	2020	MCY	GAS	30	4056.627639	147.00431	132.303882	0.014%
Fresno	2020	MCY	GAS	35	13991.15637	139.89607	125.906467	0.049%
Fresno	2020	MCY	GAS	40	23275.16288	137.24882	123.523938	0.082%
Fresno	2020	MCY	GAS	45	20382.35374	138.97664	125.078975	0.072%
Fresno	2020	MCY	GAS	50	27895.39084	145.4486	130.903738	0.099%
Fresno	2020	MCY	GAS	55	18574.45022	157.57522	141.817698	0.066%
Fresno	2020	MCY	GAS	60	22989.80272	177.00467	159.304207	0.081%
Fresno	2020	MCY	GAS	65	23486.72339	206.48665	185.837981	0.083%
Fresno	2020	MCY	GAS	70	22074.1257	250.51598	225.464381	0.078%
Fresno	2020	MDV	GAS	5	427.4652288	1956.688	1525.97278	0.002%
Fresno	2020	MDV	DSL	5	0.333527873	490.28924	377.108778	0.000%
Fresno	2020	MDV	GAS	10	7543.139266	1446.2357	1127.90657	0.027%
Fresno	2020	MDV	DSL	10	5.885501367	446.28971	343.748967	0.000%
Fresno	2020	MDV	GAS	15	3525.090445	1110.5412	866.11421	0.012%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	MDV	DSL	15	2.75043645	380.1288	293.586725	0.000%
Fresno	2020	MDV	GAS	20	222363.35	890.39433	694.407181	0.786%
Fresno	2020	MDV	DSL	20	173.4980433	335.55537	259.791799	0.001%
Fresno	2020	MDV	GAS	25	45041.19318	741.97753	578.642654	0.159%
Fresno	2020	MDV	DSL	25	35.14319288	306.59881	237.837356	0.000%
Fresno	2020	MDV	GAS	30	103917.9823	636.78632	496.616032	0.367%
Fresno	2020	MDV	DSL	30	81.08154619	289.65159	224.98822	0.000%
Fresno	2020	MDV	GAS	35	358409.259	568.60891	443.447127	1.267%
Fresno	2020	MDV	DSL	35	279.6472728	282.71202	219.726732	0.001%
Fresno	2020	MDV	GAS	40	596236.1499	526.15478	410.342796	2.108%
Fresno	2020	MDV	DSL	40	465.2106216	284.9856	221.450527	0.002%
Fresno	2020	MDV	GAS	45	522131.5284	506.29265	394.85277	1.846%
Fresno	2020	MDV	DSL	45	407.3908075	296.73091	230.355656	0.001%
Fresno	2020	MDV	GAS	50	714591.7653	506.04172	394.655526	2.526%
Fresno	2020	MDV	DSL	50	557.5570769	319.30972	247.474579	0.002%
Fresno	2020	MDV	GAS	55	475818.7393	524.73439	409.233126	1.682%
Fresno	2020	MDV	DSL	55	371.2554625	355.45334	274.878147	0.001%
Fresno	2020	MDV	GAS	60	588926.1182	564.34648	440.127202	2.082%
Fresno	2020	MDV	DSL	60	459.5070332	409.81987	316.098065	0.002%
Fresno	2020	MDV	GAS	65	601655.6237	630.1431	491.441651	2.127%
Fresno	2020	MDV	DSL	65	469.4391087	490.00332	376.891997	0.002%
Fresno	2020	MDV	GAS	70	565469.2796	675.65501	526.934139	1.999%
Fresno	2020	MDV	DSL	70	441.2049752	608.30305	466.585136	0.002%
Fresno	2020	MH	GAS	5	375.9017657	2513.4973	2262.14753	0.001%
Fresno	2020	MH	DSL	5	74.62377466	2390.0672	2151.06044	0.000%
Fresno	2020	MH	GAS	10	1889.661497	2036.1283	1832.51547	0.007%
Fresno	2020	MH	DSL	10	371.4490664	2170.188	1953.16921	0.001%
Fresno	2020	MH	GAS	15	2386.966339	1392.4297	1253.18671	0.008%
Fresno	2020	MH	DSL	15	501.3272751	1781.9066	1603.71592	0.002%
Fresno	2020	MH	GAS	20	2475.870442	1006.0686	905.461738	0.009%
Fresno	2020	MH	DSL	20	531.6758273	1462.2599	1316.03391	0.002%
Fresno	2020	MH	GAS	25	2758.692156	768.01205	691.210843	0.010%
Fresno	2020	MH	DSL	25	553.719262	1311.5663	1180.40971	0.002%
Fresno	2020	MH	GAS	30	3119.094445	619.43361	557.490248	0.011%
Fresno	2020	MH	DSL	30	665.8025648	1231.0993	1107.98936	0.002%
Fresno	2020	MH	GAS	35	3876.560955	527.84661	475.061951	0.014%
Fresno	2020	MH	DSL	35	785.0689398	1164.3217	1047.88949	0.003%
Fresno	2020	MH	GAS	40	4825.918952	475.2332	427.709878	0.017%
Fresno	2020	MH	DSL	40	974.5408363	1111.2334	1000.11009	0.003%
Fresno	2020	MH	GAS	45	4400.908252	452.05585	406.850268	0.016%
Fresno	2020	MH	DSL	45	798.019717	1071.8346	964.651153	0.003%
Fresno	2020	MH	GAS	50	4282.988184	454.32186	408.889674	0.015%
Fresno	2020	MH	DSL	50	893.1138315	1046.1252	941.512654	0.003%
Fresno	2020	MH	GAS	55	5601.758146	482.41557	434.174012	0.020%
Fresno	2020	MH	DSL	55	1308.777391	1034.1051	930.694616	0.005%
Fresno	2020	MH	GAS	60	6464.173618	541.20922	487.088296	0.023%
Fresno	2020	MH	DSL	60	1572.715418	1035.7744	932.196962	0.006%
Fresno	2020	MH	GAS	65	1010.10891	641.49794	577.348142	0.004%
Fresno	2020	MH	DSL	65	247.5006536	1051.1334	946.020045	0.001%
Fresno	2020	OBUS	GAS	5	223.1933909	2513.4974	2262.14768	0.001%
Fresno	2020	OBUS	DSL	5	189.4743925	3023.7787	2721.40084	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	OBUS	GAS	10	1121.995179	2036.1283	1832.51547	0.004%
Fresno	2020	OBUS	DSL	10	873.8793826	2435.1748	2191.65732	0.003%
Fresno	2020	OBUS	GAS	15	1417.27225	1392.4297	1253.18671	0.005%
Fresno	2020	OBUS	DSL	15	1150.490893	1981.8507	1783.66567	0.004%
Fresno	2020	OBUS	GAS	20	1470.059473	1006.0686	905.461718	0.005%
Fresno	2020	OBUS	DSL	20	1535.69351	1680.0018	1512.00159	0.005%
Fresno	2020	OBUS	GAS	25	1637.986093	768.01209	691.210882	0.006%
Fresno	2020	OBUS	DSL	25	1593.312243	1565.8826	1409.29435	0.006%
Fresno	2020	OBUS	GAS	30	1851.976584	619.43366	557.490296	0.007%
Fresno	2020	OBUS	DSL	30	2222.551712	1524.477	1372.02928	0.008%
Fresno	2020	OBUS	GAS	35	2301.725777	527.84661	475.061952	0.008%
Fresno	2020	OBUS	DSL	35	3281.369258	1506.8029	1356.12259	0.012%
Fresno	2020	OBUS	GAS	40	2865.411437	475.23323	427.709905	0.010%
Fresno	2020	OBUS	DSL	40	3502.618858	1398.0016	1258.20144	0.012%
Fresno	2020	OBUS	GAS	45	2613.059424	452.05584	406.850252	0.009%
Fresno	2020	OBUS	DSL	45	3919.848541	1422.5072	1280.25645	0.014%
Fresno	2020	OBUS	GAS	50	2543.043925	454.32186	408.889677	0.009%
Fresno	2020	OBUS	DSL	50	4186.335389	1378.9402	1241.04618	0.015%
Fresno	2020	OBUS	GAS	55	3326.069877	482.41555	434.173991	0.012%
Fresno	2020	OBUS	DSL	55	5486.643759	1338.9738	1205.07644	0.019%
Fresno	2020	OBUS	GAS	60	3838.132886	541.2092	487.088281	0.014%
Fresno	2020	OBUS	DSL	60	3711.118326	1163.509	1047.15807	0.013%
Fresno	2020	OBUS	GAS	65	599.756791	641.49795	577.348151	0.002%
Fresno	2020	OBUS	DSL	65	966.0730169	1343.8417	1209.45751	0.003%
Fresno	2020	SBUS	GAS	5	58.03696424	2513.497	2262.14732	0.000%
Fresno	2020	SBUS	DSL	5	153.6039937	2632.2332	2369.0099	0.001%
Fresno	2020	SBUS	GAS	10	203.4165827	2036.1281	1832.5153	0.001%
Fresno	2020	SBUS	DSL	10	538.3741248	2174.4303	1956.98731	0.002%
Fresno	2020	SBUS	GAS	15	406.8331817	1392.4295	1253.18659	0.001%
Fresno	2020	SBUS	DSL	15	1076.74825	1785.3958	1606.85622	0.004%
Fresno	2020	SBUS	GAS	20	552.2098641	1006.0685	905.461668	0.002%
Fresno	2020	SBUS	DSL	20	1461.510625	1408.4997	1267.64973	0.005%
Fresno	2020	SBUS	GAS	25	871.7004002	768.0121	691.21089	0.003%
Fresno	2020	SBUS	DSL	25	2307.092737	1314.1617	1182.74553	0.008%
Fresno	2020	SBUS	GAS	30	1045.811315	619.43358	557.490219	0.004%
Fresno	2020	SBUS	DSL	30	2767.904718	1233.5395	1110.18552	0.010%
Fresno	2020	SBUS	GAS	35	1073.393783	527.84651	475.061863	0.004%
Fresno	2020	SBUS	DSL	35	2840.905979	1166.633	1049.96972	0.010%
Fresno	2020	SBUS	GAS	40	724.5975211	475.23316	427.709842	0.003%
Fresno	2020	SBUS	DSL	40	1917.761723	1113.4423	1002.09811	0.007%
Fresno	2020	SBUS	GAS	45	347.6444581	452.05579	406.850211	0.001%
Fresno	2020	SBUS	DSL	45	920.0959117	1073.9674	966.570693	0.003%
Fresno	2020	SBUS	GAS	50	174.1108852	454.32177	408.889594	0.001%
Fresno	2020	SBUS	DSL	50	460.811981	1048.2083	943.387475	0.002%
Fresno	2020	SBUS	GAS	55	259.1529318	482.41547	434.173922	0.001%
Fresno	2020	SBUS	DSL	55	685.8891861	1036.165	932.548455	0.002%
Fresno	2020	SBUS	GAS	60	144.2307875	541.2091	487.088192	0.001%
Fresno	2020	SBUS	DSL	60	381.7295431	1037.8374	934.05363	0.001%
Fresno	2020	T6	GAS	5	757.7971042	2513.4975	2262.14774	0.003%
Fresno	2020	T6	DSL	5	3782.072492	2577.8739	2320.08648	0.013%
Fresno	2020	T6	GAS	10	3809.452781	2036.1283	1832.51547	0.013%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	T6	DSL	10	18825.7321	2129.5253	1916.57274	0.067%
Fresno	2020	T6	GAS	15	4811.99169	1392.4297	1253.18675	0.017%
Fresno	2020	T6	DSL	15	25408.20417	1748.5248	1573.67236	0.090%
Fresno	2020	T6	GAS	20	4991.217479	1006.0686	905.46177	0.018%
Fresno	2020	T6	DSL	20	26946.3239	1379.4122	1241.47096	0.095%
Fresno	2020	T6	GAS	25	5561.370137	768.01215	691.210939	0.020%
Fresno	2020	T6	DSL	25	28063.52768	1287.0224	1158.32015	0.099%
Fresno	2020	T6	GAS	30	6287.921467	619.43362	557.49026	0.022%
Fresno	2020	T6	DSL	30	33744.11845	1208.0651	1087.25862	0.119%
Fresno	2020	T6	GAS	35	7814.932614	527.84653	475.061878	0.028%
Fresno	2020	T6	DSL	35	39788.75993	1142.5404	1028.28635	0.141%
Fresno	2020	T6	GAS	40	9728.784867	475.23324	427.709914	0.034%
Fresno	2020	T6	DSL	40	49391.55144	1090.4482	981.403359	0.175%
Fresno	2020	T6	GAS	45	8871.986895	452.05589	406.850299	0.031%
Fresno	2020	T6	DSL	45	40445.13139	1051.7885	946.609636	0.143%
Fresno	2020	T6	GAS	50	8634.26726	454.32179	408.889615	0.031%
Fresno	2020	T6	DSL	50	45264.67932	1026.5613	923.905185	0.160%
Fresno	2020	T6	GAS	55	11292.83405	482.4156	434.174038	0.040%
Fresno	2020	T6	DSL	55	66331.28571	1014.7667	913.290006	0.235%
Fresno	2020	T6	GAS	60	13031.41533	541.20926	487.088332	0.046%
Fresno	2020	T6	DSL	60	79708.15566	1016.4046	914.764098	0.282%
Fresno	2020	T6	GAS	65	2036.323575	641.49801	577.34821	0.007%
Fresno	2020	T6	DSL	65	12543.79741	1031.475	928.327461	0.044%
Fresno	2020	T7	GAS	5	45.14811148	2513.4971	2262.14736	0.000%
Fresno	2020	T7	DSL	5	8396.704746	3977.8081	3580.02731	0.030%
Fresno	2020	T7	GAS	10	220.662119	2036.1283	1832.51544	0.001%
Fresno	2020	T7	DSL	10	32075.80037	3285.9804	2957.38233	0.113%
Fresno	2020	T7	GAS	15	240.6355065	1392.4297	1253.18671	0.001%
Fresno	2020	T7	DSL	15	39228.96626	2698.0747	2428.26726	0.139%
Fresno	2020	T7	GAS	20	411.241983	1006.0685	905.461655	0.001%
Fresno	2020	T7	DSL	20	97100.08386	2129.5835	1916.62514	0.343%
Fresno	2020	T7	GAS	25	536.6970104	768.01215	691.210933	0.002%
Fresno	2020	T7	DSL	25	88604.77385	1985.9498	1787.35483	0.313%
Fresno	2020	T7	GAS	30	980.1093934	619.43364	557.490278	0.003%
Fresno	2020	T7	DSL	30	149589.5276	1864.1142	1677.70278	0.529%
Fresno	2020	T7	GAS	35	1743.255924	527.84661	475.061945	0.006%
Fresno	2020	T7	DSL	35	269115.3006	1763.0057	1586.70517	0.951%
Fresno	2020	T7	GAS	40	1519.637782	475.23317	427.709849	0.005%
Fresno	2020	T7	DSL	40	253966.6678	1682.6245	1514.36201	0.898%
Fresno	2020	T7	GAS	45	1607.939024	452.0558	406.850223	0.006%
Fresno	2020	T7	DSL	45	355569.7933	1622.9703	1460.67329	1.257%
Fresno	2020	T7	GAS	50	1682.35955	454.3218	408.889618	0.006%
Fresno	2020	T7	DSL	50	369783.8463	1584.0433	1425.63901	1.307%
Fresno	2020	T7	GAS	55	2469.579288	482.41551	434.173958	0.009%
Fresno	2020	T7	DSL	55	450928.7666	1565.8435	1409.25918	1.594%
Fresno	2020	T7	GAS	60	609.4964239	541.20921	487.088286	0.002%
Fresno	2020	T7	DSL	60	137368.6558	1568.3709	1411.53379	0.486%
Fresno	2020	T7	GAS	65	326.6774339	641.49796	577.348164	0.001%
Fresno	2020	T7	DSL	65	75239.57125	1591.6254	1432.46284	0.266%
Fresno	2020	UBUS	GAS	5	142.5170016	2513.497	2262.14729	0.001%
Fresno	2020	UBUS	DSL	5	351.317801	2440.8645	2196.77806	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2020	UBUS	GAS	10	511.5367803	2036.1283	1832.51547	0.002%
Fresno	2020	UBUS	DSL	10	1260.986146	2440.8645	2196.77804	0.004%
Fresno	2020	UBUS	GAS	15	1023.073523	1392.4297	1253.18671	0.004%
Fresno	2020	UBUS	DSL	15	2521.972627	2440.8642	2196.77781	0.009%
Fresno	2020	UBUS	GAS	20	1350.100402	1006.0686	905.461701	0.005%
Fresno	2020	UBUS	DSL	20	3328.12413	2440.8647	2196.77822	0.012%
Fresno	2020	UBUS	GAS	25	2033.347957	768.01208	691.210868	0.007%
Fresno	2020	UBUS	DSL	25	5012.394	2440.8646	2196.77812	0.018%
Fresno	2020	UBUS	GAS	30	2544.884591	619.43361	557.490252	0.009%
Fresno	2020	UBUS	DSL	30	6273.37969	2440.8644	2196.77797	0.022%
Fresno	2020	UBUS	GAS	35	2493.975603	527.84654	475.061885	0.009%
Fresno	2020	UBUS	DSL	35	6147.88385	2440.8645	2196.77802	0.022%
Fresno	2020	UBUS	GAS	40	1797.928884	475.23316	427.709842	0.006%
Fresno	2020	UBUS	DSL	40	4432.06321	2440.8647	2196.77821	0.016%
Fresno	2020	UBUS	GAS	45	783.7715293	452.05586	406.850272	0.003%
Fresno	2020	UBUS	DSL	45	1932.070593	2440.8644	2196.77797	0.007%
Fresno	2020	UBUS	GAS	50	398.2134972	454.3218	408.889617	0.001%
Fresno	2020	UBUS	DSL	50	981.633661	2440.8646	2196.77811	0.003%
Fresno	2020	UBUS	GAS	55	493.7042317	482.41551	434.173958	0.002%
Fresno	2020	UBUS	DSL	55	1217.027328	2440.8644	2196.77795	0.004%
Fresno	2020	UBUS	GAS	60	808.0757296	541.20919	487.088268	0.003%
Fresno	2020	UBUS	DSL	60	1991.982525	2440.8644	2196.778	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide	0.290
Methane	0.000031
Nitrous oxide	0.000011

Used 2020 emission factor projected by PG&E

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions MTCO ₂ e
			CO ₂	CH ₄	N ₂ O	
Residential	1,694,412,000	2,610	245,690	26.3	9.3	226,011
Commercial	1,800,825,042	7,503	261,120	27.9	9.9	240,205
Industrial	0		0	0.0	0.0	0
Total	3,495,237,042		506,809	54.2	19.2	466,216

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions MTCO ₂ e
			CO ₂	CH ₄	N ₂ O	
Residential	89,589,600	138	524,099	49.3	1.0	476,679
Commercial	96,725,642	403	565,845	53.2	1.1	514,647
Industrial	0		0	0.0	0.0	0
Total	186,315,242		1,089,944	102.5	2.0	991,326

Sources:

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Emission factors for carbon dioxide from: PG&E 2013. Pacific Gas and Electric Company. ; PG&E. 2013. Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

- Per capita emission rates are from the year 2010 based on actual usage from PG&E. The electricity and natural gas usage for this year are calculated as the per capita rate multiplied by the projected population.

Community Greenhouse Gas Inventory

Offroad Equipment

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,082,000	968	0.0663	0.0093	882
Fresno	649,200	581	0	0	529
Percent Fresno/Fresno County	60.0%				

Other Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,082,000	1,085	0.291	0.08810	1,015
Fresno	649,200	651	0	0	609
Percent Fresno/Fresno County	60.0%				

Total Fresno 1,138

Notes:

Emissions for Fresno County are from OFFROAD2007 for the year assessed; emissions from Fresno are apportioned based on population.

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

Emissions (MMTCO ₂ e)	36.11
Population	40,643,643
Emissions (MTCO ₂ e per person)	0.89

Fresno

Population	649,200
Emissions (MTCO ₂ e per person) (estimated by using California per person emissions)	576,784

Sources/Notes:

California Emissions from: California Air Resources Board. 2010. California GHG Emissions - Forecast (2008-2020) Website: http://www.arb.ca.gov/cc/inventory/data/tables/2020_ghg_emissions_forecast_2010-10-28.pdf

Accessed August 19, 2013.

California Population: California Department of Finance (DOF). 2013. Total Population Projections for California and Counties: July 1, 2015 to 2060 in 5-year Increments. Website:

http://www.dof.ca.gov/research/demographic/reports/projections/P-1/documents/Projections_Press_Release_2010-2060.pdf. Accessed August 19, 2013.

Community Greenhouse Gas Inventory

Summary

Year: 2020

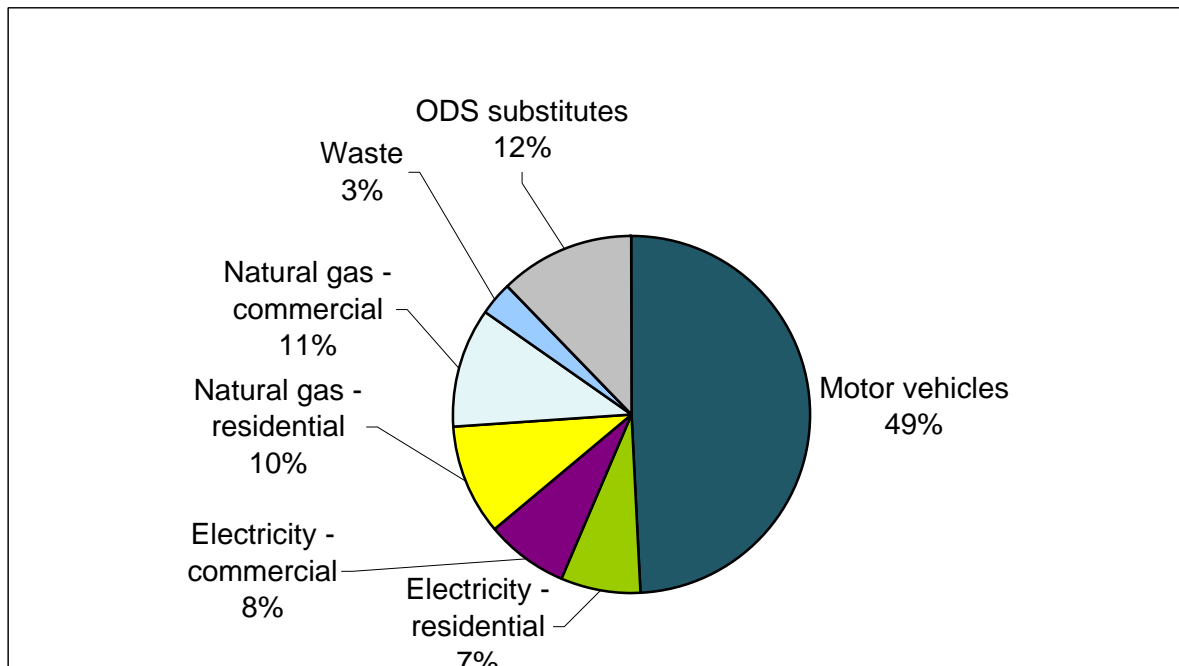
Prepared by FirstCarbon Solutions

	Data	Source
City Information		
Population	649,200	Fresno COG
Employment	240,014	
County Information		
Population	1,082,000	Fresno COG

-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050. Produced under contract by: The Planning Center|DC&E. March 2012.

-Employment: Took the 2010 population (545,000) and 2010 employment (183,825) and cross multiplied with the 2020 population (649,200) and the 2020 employment number (X).

Emissions (MTCO₂e/year)	Without Regulation	With Pavley I and LCFS
Motor vehicles	2,337,015	1,828,249
Electricity - residential	345,142	313,405
Electricity - commercial	366,817	334,657
Natural gas - residential	476,679	431,774
Natural gas - commercial	514,647	469,526
Waste	147,628	147,628
Offroad equipment	1,138	1,138
ODS substitutes	576,784	576,784
<u>Total</u>	<u>4,765,850</u>	4,103,161



Community Greenhouse Gas Inventory

Waste

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Emissions

Emissions (MTCO ₂ e)*	147,628	
Emissions (MTCO ₂ e/person)	0.2274	2010 waste emissions per person

Notes:

*Emissions were calculated by multiplying the 2010 per capita rate by the population for this year.

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without regulation)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **11,149,323** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 4,069,502,895 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	800	0	800	5
5 - 10 MPH	665	778	0	1,443	5
10 - 15 MPH	129,603	167,298	355,800	652,701	10
15 - 20 MPH	4,379	6,480	6,845	17,704	15
20 - 25 MPH	19,163	32,031	54,608	105,802	20
25 - 30 MPH	78,269	103,641	225,197	407,107	25
30 - 35 MPH	86,745	137,277	171,480	395,502	30
35 - 40 MPH	510,988	662,086	1,334,132	2,507,207	35
40 - 45 MPH	228,515	278,844	612,561	1,119,920	40
45 - 50 MPH	194,394	256,153	754,432	1,204,979	45
50 - 55 MPH	105,138	148,518	357,499	611,155	50
55 - 60 MPH	466,648	554,845	1,312,348	2,333,841	55
60 - 65 MPH	447,361	555,735	1,131,920	2,135,016	60
65 - 70 MPH	25	33	89	147	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,271,891	2,904,520	6,316,912	11,493,323	

Source:
 Fehr and Peers. 2013. 2020 VMT was found by using multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 10 years of VMT growth between 2010 and 2020 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $(((2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years}) = .0248)$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2243	652701	17704	105802	407107	395502	2507207	1119920	1204979	611155	2333841	2135016	147	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.63%	0.12%	0.7% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.37%	0.01%	42.6% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.31%	0.01%	44.3% LDA, MCY
LHD1	2.66%	1.62%	10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.44%	2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.66%	0.00%	0.1% LDA, MCY
MDV	16.99%	0.01%	
MH	0.15%	0.03%	
OBUS	0.09%	0.12%	
SBUS	0.02%	0.05%	
T6	0.31%	1.66%	
T7	0.04%	8.23%	
UBUS	0.05%	0.13%	
Total			100.0%

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1130	835	641	514	428	368	328	304	292	292	303	326	364	390	0
LDT1		1305	964	741	594	495	425	379	351	338	337	350	376	420	451	0
LDT2		1536	1135	872	699	582	500	446	413	397	397	412	443	495	530	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		264	240	203	177	159	147	140	137	139	145	158	177	206	251	0
MDV		1957	1446	1111	890	742	637	569	526	506	506	525	564	630	676	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions (without regulation)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		487	444	378	335	306	289	282	285	296	319	354	408	487	603	0
LDT1		486	444	380	338	310	293	287	289	300	322	357	409	486	600	0
LDT2		484	441	378	335	308	291	285	287	298	320	354	407	483	597	0
LHD1		521	521	521	521	521	521	521	521	521	521	521	0	0	0	0
LHD2		521	521	521	521	521	521	521	521	521	521	521	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		490	446	380	336	307	290	283	285	297	319	355	410	490	608	0
MH		2390	2170	1782	1462	1312	1231	1164	1111	1072	1046	1034	1036	1051	0	0
OBUS		3024	2435	1982	1680	1566	1524	1507	1398	1423	1379	1339	1164	1344	0	0
SBUS		2632	2174	1785	1408	1314	1234	1167	1113	1074	1048	1036	1038	0	0	0
T6		2578	2130	1749	1379	1287	1208	1143	1090	1052	1027	1015	1016	1031	0	0
T7		3978	3286	2698	2130	1986	1864	1763	1683	1623	1584	1566	1568	1592	0	0
UBUS		2441	2441	2441	2441	2441	2441	2441	2441	2441	2441	2441	2441	2441	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		979	284768	7724	46161	177617	172554	1093872	488611	525722	266641	1018234	931488	64	0	0
LDT1		143	41599	1128	6743	25947	25207	159795	71377	76799	38952	148746	136074	9	0	0
LDT2		366	106452	2887	17256	66397	64504	408913	182654	196526	99676	380638	348211	24	0	0
LHD1		60	17388	472	2819	10845	10536	66793	29835	32101	16281	62174	56877	4	0	0
LHD2		6	1777	48	288	1109	1077	6828	3050	3281	1664	6356	5814	0	0	0
MCY		15	4329	117	702	2700	2623	16630	7428	7993	4054	15480	14161	1	0	0
MDV		381	110904	3008	17977	69174	67202	426013	190292	204744	103845	396555	362772	25	0	0
MH		3	1003	27	163	626	608	3853	1721	1852	939	3587	3281	0	0	0
OBUS		2	596	16	97	371	361	2288	1022	1100	558	2130	1948	0	0	0
SBUS		0	135	4	22	84	82	520	232	250	127	484	442	0	0	0
T6		7	2022	55	328	1261	1225	7768	3470	3733	1893	7231	6615	0	0	0
T7		1	286	8	46	178	173	1099	491	528	268	1023	935	0	0	0
UBUS		1	332	9	54	207	201	1275	569	613	311	1187	1086	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		3	789	21	128	492	478	3029	1353	1456	738	2820	2580	0	0	0
LDT1		0	55	1	9	34	33	212	95	102	52	197	180	0	0	0
LDT2		0	50	1	8	31	30	192	86	93	47	179	164	0	0	0
LHD1		36	10595	287	1717	6608	6420	40699	18179	19560	9921	37885	34657	2	0	0
LHD2		10	2842	77	461	1773	1722	10918	4877	5247	2661	10163	9297	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	87	2	14	54	52	332	148	160	81	309	283	0	0	0
MH		1	214	6	35	134	130	822	367	395	200	766	700	0	0	0
OBUS		3	753	20	122	469	456	2891	1292	1390	705	2691	2462	0	0	0
SBUS		1	358	10	58	223	217	1375	614	661	335	1280	1171	0	0	0
T6		37	10851	294	1759	6768	6575	41683	18619	20033	10161	38801	35495	2	0	0
T7		185	53697	1456	8704	33492	32537	206264	92134	99132	50279	192002	175645	12	0	0
UBUS		3	818	22	133	510	496	3142	1404	1510	766	2925	2676	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		444	95,444	1,988	9,526	30,550	25,468	144,160	59,580	61,685	31,272	123,830	121,830	9	0	0	705,341
LDT1		75	16,108	336	1,608	5,154	4,298	24,327	10,055	10,411	5,278	20,898	20,561	2	0	0	119,035
LDT2		226	48,522	1,011	4,843	15,528	12,946	73,283	30,289	31,360	15,898	62,951	61,935	5	0	0	358,571
LHD1		60	14,215	264	1,139	3,344	2,620	14,155	5,693	5,826	2,970	12,042	0	0	0	0	62,268

Community Greenhouse Gas Inventory

Motor Vehicle Emissions (without regulation)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	6	1,453	27	116	342	268	1,447	582	596	304	1,231	0	0	0	0	6,365
MCY	2	417	10	50	173	155	934	409	446	237	979	1,006	0	0	0	4,816
MDV	299	64,398	1,341	6,427	20,607	17,181	97,257	40,199	41,620	21,099	83,547	82,199	6	0	0	475,881
MH	3	820	15	66	193	151	817	328	336	171	695	713	0	0	0	4,305
OBUS	2	487	9	39	115	90	485	195	200	102	412	423	0	0	0	2,556
SBUS	0	111	2	9	26	20	110	44	45	23	94	96	0	0	0	580
T6	7	1,653	31	132	389	305	1,646	662	678	345	1,400	1,437	0	0	0	8,679
T7	1	234	4	19	55	43	233	94	96	49	198	203	0	0	0	1,227
UBUS	1	271	5	22	64	50	270	109	111	57	230	236	0	0	0	1,424
Total	1,127	244,134	5,042	23,994	76,539	63,595	359,124	148,240	153,409	77,803	308,508	290,640	22	0	0	1,752,177
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	140	3	17	60	56	344	155	173	94	401	422	0	0	0	1,866
LDT1	0	10	0	1	4	4	24	11	12	7	28	30	0	0	0	132
LDT2	0	9	0	1	4	4	22	10	11	6	25	27	0	0	0	119
LHD1	8	2,218	60	360	1,384	1,344	8,521	3,806	4,095	2,077	7,931	0	0	0	0	31,796
LHD2	2	595	16	96	371	360	2,285	1,021	1,098	557	2,127	0	0	0	0	8,528
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	16	0	2	7	6	38	17	19	10	44	47	0	0	0	205
MH	1	187	4	20	70	64	384	164	170	84	318	291	0	0	0	1,757
OBUS	3	736	16	82	295	279	1,749	725	794	390	1,447	1,150	0	0	0	7,664
SBUS	1	313	7	33	118	107	644	275	285	141	532	488	0	0	0	2,943
T6	39	9,278	207	974	3,497	3,189	19,121	8,152	8,460	4,188	15,808	14,485	1	0	0	87,360
T7	295	70,843	1,578	7,442	26,705	24,352	146,004	62,243	64,597	31,977	120,709	110,604	8	0	0	667,062
UBUS	3	802	22	130	500	486	3,080	1,376	1,480	751	2,867	2,622	0	0	0	14,114
Total	351	85,146	1,914	9,159	33,016	30,252	182,216	77,953	81,194	40,283	152,239	130,166	9	0	0	823,898

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	2,576,074	2,337,015	2,337,015

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **11,435,514** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 4,173,962,610 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.48% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	796	0	796	5
5 - 10 MPH	661	774	0	1,435	5
10 - 15 MPH	128,951	166,457	354,011	649,418	10
15 - 20 MPH	4,357	6,447	6,811	17,615	15
20 - 25 MPH	19,066	31,870	54,334	105,270	20
25 - 30 MPH	77,876	103,120	224,064	405,060	25
30 - 35 MPH	86,309	136,586	170,618	393,513	30
35 - 40 MPH	508,418	658,756	1,327,422	2,494,596	35
40 - 45 MPH	227,365	277,442	609,480	1,114,287	40
45 - 50 MPH	193,416	254,865	750,637	1,198,918	45
50 - 55 MPH	104,609	147,771	355,701	608,081	50
55 - 60 MPH	464,301	552,054	1,305,747	2,322,102	55
60 - 65 MPH	445,111	552,939	1,126,227	2,124,277	60
65 - 70 MPH	25	32	89	146	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,260,464	2,889,911	6,285,139	11,435,514	

Source:
 Fehr and Peers. 2013. 2020 VMT was found by using multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 10 years of VMT growth between 2010 and 2020 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $[(2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years} = .0248]$.

2010 VMT found by backcasting the

2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2232	649418	17615	105270	405060	393513	2494596	1114287	1198918	608081	2322102	2124277	146	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.63%	0.12%	0.7% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.37%	0.01%	42.6% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.31%	0.01%	44.3% LDA, MCY
LHD1	2.66%	1.62%	10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.44%	2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.66%	0.00%	0.1% LDA, MCY
MDV	16.99%	0.01%	
MH	0.15%	0.03%	
OBUS	0.09%	0.12%	
SBUS	0.02%	0.05%	
T6	0.31%	1.66%	
T7	0.04%	8.23%	
UBUS	0.05%	0.13%	
Total			100.0%

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		766	566	434	348	290	249	222	206	198	198	205	221	246	264	0
LDT1		926	684	525	421	351	301	269	249	240	239	248	267	298	320	0
LDT2		1144	845	649	520	434	372	332	308	296	296	307	330	368	395	0
LHD1		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
LHD2		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
MCY		237	216	183	160	143	132	126	124	125	131	142	159	186	225	0
MDV		1526	1128	866	694	579	497	443	410	395	395	409	440	491	527	0
MH		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
OBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
SBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
T6		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
T7		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		330	301	258	230	211	200	195	197	205	219	243	278	330	406	0
LDT1		324	297	256	229	211	201	197	198	205	219	241	275	324	396	0
LDT2		353	323	278	248	228	216	212	213	221	237	261	298	353	433	0
LHD1		469	469	469	469	469	469	469	469	469	469	469	0	0	0	0
LHD2		469	469	469	469	469	469	469	469	469	469	469	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		377	344	294	260	238	225	220	221	230	247	275	316	377	467	0
MH		2151	1953	1604	1316	1180	1108	1048	1000	965	942	931	932	946	0	0
OBUS		2721	2192	1784	1512	1409	1372	1356	1258	1280	1241	1205	1047	1209	0	0
SBUS		2369	1957	1607	1268	1183	1110	1050	1002	967	943	933	934	0	0	0
T6		2320	1917	1574	1241	1158	1087	1028	981	947	924	913	915	928	0	0
T7		3580	2957	2428	1917	1787	1678	1587	1514	1461	1426	1409	1412	1432	0	0
UBUS		2197	2197	2197	2197	2197	2197	2197	2197	2197	2197	2197	2197	0	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		974	283335	7685	45928	176724	171686	1088370	486153	523077	265300	1013113	926803	64	0	0
LDT1		142	41390	1123	6709	25816	25080	158991	71018	76412	38756	147998	135389	9	0	0
LDT2		364	105917	2873	17169	66063	64180	406857	181735	195538	99175	378724	346459	24	0	0
LHD1		59	17301	469	2804	10791	10483	66457	29685	31939	16199	61861	56591	4	0	0
LHD2		6	1769	48	287	1103	1072	6793	3035	3265	1656	6324	5785	0	0	0
MCY		15	4308	117	698	2687	2610	16547	7391	7952	4033	15402	14090	1	0	0
MDV		379	110346	2993	17887	68826	66864	423870	189334	203715	103322	394561	360947	25	0	0
MH		3	998	27	162	622	605	3834	1712	1843	935	3569	3265	0	0	0
OBUS		2	593	16	96	370	359	2276	1017	1094	555	2119	1938	0	0	0
SBUS		0	135	4	22	84	82	517	231	248	126	481	440	0	0	0
T6		7	2012	55	326	1255	1219	7729	3452	3714	1884	7194	6581	0	0	0
T7		1	285	8	46	177	172	1093	488	525	266	1017	931	0	0	0
UBUS		1	330	9	54	206	200	1268	567	610	309	1181	1080	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		3	785	21	127	489	475	3014	1346	1449	735	2806	2567	0	0	0
LDT1		0	55	1	9	34	33	211	94	101	51	196	179	0	0	0
LDT2		0	50	1	8	31	30	191	86	92	47	178	163	0	0	0
LHD1		36	10542	286	1709	6575	6388	40494	18088	19462	9871	37694	34483	2	0	0
LHD2		10	2828	77	458	1764	1714	10863	4852	5221	2648	10112	9251	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	86	2	14	54	52	331	148	159	81	308	282	0	0	0
MH		1	213	6	35	133	129	818	366	393	199	762	697	0	0	0
OBUS		3	749	20	121	467	454	2877	1285	1383	701	2678	2450	0	0	0
SBUS		1	356	10	58	222	216	1368	611	658	333	1274	1165	0	0	0
T6		37	10797	293	1750	6734	6542	41473	18525	19932	10109	38605	35316	2	0	0
T7		184	53427	1449	8660	33324	32374	205227	91671	98633	50026	191036	174761	12	0	0
UBUS		3	814	22	132	508	493	3127	1397	1503	762	2910	2662	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		299	64,357	1,340	6,423	20,598	17,172	97,203	40,174	41,593	21,086	83,497	82,148	6	0	0	475,598
LDT1		53	11,371	237	1,135	3,638	3,034	17,172	7,098	7,349	3,725	14,751	14,514	1	0	0	84,024
LDT2		167	35,950	749	3,588	11,504	9,592	54,294	22,441	23,234	11,778	46,640	45,887	4	0	0	265,661
LHD1		54	12,729	236	1,020	2,995	2,346	12,676	5,098	5,217	2,659	10,784	0	0	0	0	55,760

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	6	1,301	24	104	306	240	1,296	521	533	272	1,102	0	0	0	0	5,700
MCY	1	374	9	45	154	139	836	367	399	212	877	901	0	0	0	4,313
MDV	232	49,971	1,041	4,987	15,990	13,332	75,468	31,193	32,296	16,372	64,829	63,783	5	0	0	369,266
MH	3	734	14	59	173	135	731	294	301	153	622	638	0	0	0	3,855
OBUS	2	436	8	35	103	80	434	175	179	91	369	379	0	0	0	2,289
SBUS	0	99	2	8	23	18	99	40	41	21	84	86	0	0	0	520
T6	6	1,480	27	119	348	273	1,474	593	607	309	1,254	1,287	0	0	0	7,772
T7	1	209	4	17	49	39	208	84	86	44	177	182	0	0	0	1,099
UBUS	1	243	5	19	57	45	242	97	100	51	206	211	0	0	0	1,275
Total	826	179,254	3,695	17,557	55,939	46,445	262,133	108,174	111,934	56,774	225,193	210,018	16	0	0	1,277,958
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	0	95	2	12	41	38	237	106	119	65	273	286	0	0	0	1,274
LDT1	0	7	0	1	3	3	17	7	8	5	19	20	0	0	0	89
LDT2	0	6	0	1	3	3	16	7	8	4	19	20	0	0	0	87
LHD1	7	1,986	54	322	1,239	1,204	7,630	3,408	3,667	1,860	7,102	0	0	0	0	28,472
LHD2	2	533	14	86	332	323	2,046	914	984	499	1,905	0	0	0	0	7,636
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	12	0	1	5	5	29	13	15	8	34	36	0	0	0	158
MH	1	167	4	18	63	57	344	147	152	75	285	261	0	0	0	1,574
OBUS	3	659	15	74	264	250	1,566	649	711	349	1,296	1,030	0	0	0	6,863
SBUS	1	280	6	29	105	96	577	246	255	126	477	437	0	0	0	2,635
T6	35	8,308	185	872	3,132	2,856	17,122	7,300	7,576	3,750	14,156	12,971	1	0	0	78,229
T7	264	63,438	1,413	6,664	23,914	21,807	130,742	55,737	57,845	28,635	108,092	99,043	7	0	0	597,336
UBUS	2	718	19	116	448	435	2,758	1,232	1,325	672	2,567	2,348	0	0	0	12,639
Total	315	76,209	1,713	8,198	29,550	27,076	163,085	69,767	72,664	36,048	136,224	116,451	8	0	0	737,308

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	2,015,266	1,828,249	1,828,249

EMFAC 2011
 2020 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter:
 region - County: Fresno, year - 2020, season - annual average,
 vehicle category - EMFAC2007, model year - aggregated,
 speed - all speeds, fuel - all) Website:
<http://www.arb.ca.gov/emfac/>

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	LDA	GAS	5	1097.601204	1129.5953	765.503158	0.004%
Fresno	2020	LDA	DSL	5	3.039576937	487.08109	329.765357	0.000%
Fresno	2020	LDA	GAS	10	19368.49589	834.77968	565.727079	0.068%
Fresno	2020	LDA	DSL	10	53.63699778	443.70668	301.292224	0.000%
Fresno	2020	LDA	GAS	15	9051.364273	640.94058	434.371007	0.032%
Fresno	2020	LDA	DSL	15	25.06585843	378.48579	258.477977	0.000%
Fresno	2020	LDA	GAS	20	570961.7421	513.96372	348.309075	2.019%
Fresno	2020	LDA	DSL	20	1581.159357	334.54556	229.633409	0.006%
Fresno	2020	LDA	GAS	25	115652.1287	428.38541	290.303306	0.409%
Fresno	2020	LDA	DSL	25	320.2743836	306.00044	210.894972	0.001%
Fresno	2020	LDA	GAS	30	266829.8871	367.60468	249.119316	0.943%
Fresno	2020	LDA	DSL	30	738.9295648	289.29397	199.928012	0.003%
Fresno	2020	LDA	GAS	35	920286.3609	328.24025	222.443474	3.254%
Fresno	2020	LDA	DSL	35	2548.5404	282.45305	195.437288	0.009%
Fresno	2020	LDA	GAS	40	1530953.789	303.70517	205.819413	5.413%
Fresno	2020	LDA	DSL	40	4239.656111	284.69426	196.908534	0.015%
Fresno	2020	LDA	GAS	45	1340675.525	292.23901	198.049009	4.740%
Fresno	2020	LDA	DSL	45	3712.720433	296.27271	204.509208	0.013%
Fresno	2020	LDA	GAS	50	1834855.081	292.10301	197.955884	6.487%
Fresno	2020	LDA	DSL	50	5081.247577	318.53069	219.120456	0.018%
Fresno	2020	LDA	GAS	55	1221758.238	302.89634	205.27008	4.319%
Fresno	2020	LDA	DSL	55	3383.404003	354.16085	242.509876	0.012%
Fresno	2020	LDA	GAS	60	1512183.811	325.75529	220.762098	5.346%
Fresno	2020	LDA	DSL	60	4187.676879	407.75495	277.691718	0.015%
Fresno	2020	LDA	GAS	65	1544869.267	363.73237	246.499166	5.462%
Fresno	2020	LDA	DSL	65	4278.192318	486.79924	329.580336	0.015%
Fresno	2020	LDA	GAS	70	1451953.777	390.01281	264.308173	5.133%
Fresno	2020	LDA	DSL	70	4020.882357	603.41836	406.134954	0.014%
Fresno	2020	LDT1	GAS	5	160.3399232	1304.7967	925.652415	0.001%
Fresno	2020	LDT1	DSL	5	0.212505042	486.45442	323.971419	0.000%
Fresno	2020	LDT1	GAS	10	2829.391349	964.45342	684.23582	0.010%
Fresno	2020	LDT1	DSL	10	3.749907629	444.12974	296.951752	0.000%
Fresno	2020	LDT1	GAS	15	1322.24271	740.61424	525.449186	0.005%
Fresno	2020	LDT1	DSL	15	1.752421886	380.48738	256.32308	0.000%
Fresno	2020	LDT1	GAS	20	83407.31561	593.77137	421.24901	0.295%
Fresno	2020	LDT1	DSL	20	110.5431162	337.6106	228.950955	0.000%
Fresno	2020	LDT1	GAS	25	16894.71195	494.765	350.98776	0.060%
Fresno	2020	LDT1	DSL	25	22.39124832	309.75632	211.169055	0.000%
Fresno	2020	LDT1	GAS	30	38979.08188	424.63836	301.25086	0.138%
Fresno	2020	LDT1	DSL	30	51.6605658	293.45418	200.761924	0.000%
Fresno	2020	LDT1	GAS	35	134437.4047	379.17701	269.000862	0.475%
Fresno	2020	LDT1	DSL	35	178.1753487	286.77884	196.500452	0.001%
Fresno	2020	LDT1	GAS	40	223644.9863	350.87622	248.929757	0.791%
Fresno	2020	LDT1	DSL	40	296.4058539	288.9658	197.896581	0.001%
Fresno	2020	LDT1	GAS	45	195848.7412	337.63129	239.533452	0.692%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	LDT1	DSL	45	259.5663607	300.26399	205.109234	0.001%
Fresno	2020	LDT1	GAS	50	268039.5871	337.46078	239.410422	0.948%
Fresno	2020	LDT1	DSL	50	355.2437845	321.98332	218.97465	0.001%
Fresno	2020	LDT1	GAS	55	178477.0744	349.92509	248.252412	0.631%
Fresno	2020	LDT1	DSL	55	236.5429175	356.75116	241.170106	0.001%
Fresno	2020	LDT1	GAS	60	220903.0487	376.34322	266.996146	0.781%
Fresno	2020	LDT1	DSL	60	292.7718184	409.04819	274.556024	0.001%
Fresno	2020	LDT1	GAS	65	225677.8211	420.22158	298.126155	0.798%
Fresno	2020	LDT1	DSL	65	299.1000053	486.17935	323.795817	0.001%
Fresno	2020	LDT1	GAS	70	212104.5317	450.56841	319.653386	0.750%
Fresno	2020	LDT1	DSL	70	281.110744	599.97604	396.44253	0.001%
Fresno	2020	LDT2	GAS	5	410.3073308	1536.0292	1143.76708	0.001%
Fresno	2020	LDT2	DSL	5	0.193123223	483.63558	352.949647	0.000%
Fresno	2020	LDT2	GAS	10	7240.367106	1135.2759	845.371167	0.026%
Fresno	2020	LDT2	DSL	10	3.40789224	441.45895	322.997862	0.000%
Fresno	2020	LDT2	GAS	15	3383.597905	871.73757	649.13865	0.012%
Fresno	2020	LDT2	DSL	15	1.59258996	378.03921	277.960266	0.000%
Fresno	2020	LDT2	GAS	20	213437.9851	698.95406	520.466327	0.755%
Fresno	2020	LDT2	DSL	20	100.4608962	335.3124	247.617766	0.000%
Fresno	2020	LDT2	GAS	25	43233.29642	582.47638	433.722102	0.153%
Fresno	2020	LDT2	DSL	25	20.34902432	307.5556	227.906247	0.000%
Fresno	2020	LDT2	GAS	30	99746.85881	499.88306	372.227237	0.353%
Fresno	2020	LDT2	DSL	30	46.94879405	291.3105	216.369771	0.000%
Fresno	2020	LDT2	GAS	35	344023.1716	446.36108	332.374045	1.216%
Fresno	2020	LDT2	DSL	35	161.9246321	284.65849	211.645838	0.001%
Fresno	2020	LDT2	GAS	40	572303.9925	413.02584	307.554824	2.023%
Fresno	2020	LDT2	DSL	40	269.3717451	286.83782	213.193489	0.001%
Fresno	2020	LDT2	GAS	45	501173.8359	397.43382	295.94458	1.772%
Fresno	2020	LDT2	DSL	45	235.8922431	298.09651	221.188859	0.001%
Fresno	2020	LDT2	GAS	50	685909.0183	397.23953	295.798871	2.425%
Fresno	2020	LDT2	DSL	50	322.8433094	319.73983	236.558891	0.001%
Fresno	2020	LDT2	GAS	55	456719.9404	411.91427	306.725826	1.615%
Fresno	2020	LDT2	DSL	55	214.9687115	354.38602	261.162921	0.001%
Fresno	2020	LDT2	GAS	60	565287.3873	443.00751	329.879711	1.999%
Fresno	2020	LDT2	DSL	60	266.0691583	406.50012	298.171814	0.001%
Fresno	2020	LDT2	GAS	65	577505.9743	494.65656	368.339783	2.042%
Fresno	2020	LDT2	DSL	65	271.8201986	483.36142	352.754954	0.001%
Fresno	2020	LDT2	GAS	70	542772.0652	530.38611	394.944181	1.919%
Fresno	2020	LDT2	DSL	70	255.4716835	596.75996	433.28506	0.001%
Fresno	2020	LHD1	GAS	5	21384.31271	2513.4972	2262.14749	0.076%
Fresno	2020	LHD1	DSL	5	8073.831436	521.44003	469.296029	0.029%
Fresno	2020	LHD1	GAS	10	55761.32258	2036.1281	1832.51532	0.197%
Fresno	2020	LHD1	DSL	10	26849.16852	521.44005	469.296042	0.095%
Fresno	2020	LHD1	GAS	15	126976.0519	1392.4297	1253.1867	0.449%
Fresno	2020	LHD1	DSL	15	58147.60848	521.44	469.296003	0.206%
Fresno	2020	LHD1	GAS	20	146719.8434	1006.0686	905.461733	0.519%
Fresno	2020	LHD1	DSL	20	63748.56088	521.43999	469.295993	0.225%
Fresno	2020	LHD1	GAS	25	113019.5197	768.01205	691.210844	0.400%
Fresno	2020	LHD1	DSL	25	68227.96575	521.44	469.295996	0.241%
Fresno	2020	LHD1	GAS	30	99946.34197	619.4336	557.490237	0.353%
Fresno	2020	LHD1	DSL	30	57593.04709	521.44001	469.296005	0.204%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	LHD1	GAS	35	37346.32043	527.84649	475.061842	0.132%
Fresno	2020	LHD1	DSL	35	30394.08805	521.44001	469.296012	0.107%
Fresno	2020	LHD1	GAS	40	11023.78163	475.23318	427.709861	0.039%
Fresno	2020	LHD1	DSL	40	16685.3603	521.44002	469.296021	0.059%
Fresno	2020	LHD1	GAS	45	13571.24509	452.05583	406.850248	0.048%
Fresno	2020	LHD1	DSL	45	18008.9918	521.44002	469.296015	0.064%
Fresno	2020	LHD1	GAS	50	100208.1816	454.3218	408.889624	0.354%
Fresno	2020	LHD1	DSL	50	69538.42058	521.44004	469.296036	0.246%
Fresno	2020	LHD1	GAS	55	27561.98152	482.41547	434.173925	0.097%
Fresno	2020	LHD1	DSL	55	41876.66483	521.43999	469.295994	0.148%
Fresno	2020	LHD2	GAS	5	2185.999834	2513.4972	2262.14751	0.008%
Fresno	2020	LHD2	DSL	5	2165.940834	521.32551	469.192959	0.008%
Fresno	2020	LHD2	GAS	10	5700.171632	2036.1281	1832.51531	0.020%
Fresno	2020	LHD2	DSL	10	7202.740987	521.32545	469.192908	0.025%
Fresno	2020	LHD2	GAS	15	12980.05837	1392.4297	1253.18673	0.046%
Fresno	2020	LHD2	DSL	15	15599.07284	521.32548	469.192929	0.055%
Fresno	2020	LHD2	GAS	20	14998.35728	1006.0684	905.461596	0.053%
Fresno	2020	LHD2	DSL	20	17101.62232	521.3255	469.192951	0.060%
Fresno	2020	LHD2	GAS	25	11553.35919	768.01208	691.210875	0.041%
Fresno	2020	LHD2	DSL	25	18303.29766	521.32547	469.192927	0.065%
Fresno	2020	LHD2	GAS	30	10216.96052	619.4336	557.490236	0.036%
Fresno	2020	LHD2	DSL	30	15450.30236	521.32548	469.192934	0.055%
Fresno	2020	LHD2	GAS	35	3817.707199	527.84656	475.061906	0.013%
Fresno	2020	LHD2	DSL	35	8153.724442	521.32547	469.192923	0.029%
Fresno	2020	LHD2	GAS	40	1126.900176	475.23317	427.709853	0.004%
Fresno	2020	LHD2	DSL	40	4476.12821	521.32553	469.192978	0.016%
Fresno	2020	LHD2	GAS	45	1387.31323	452.05583	406.850248	0.005%
Fresno	2020	LHD2	DSL	45	4831.21426	521.32552	469.192968	0.017%
Fresno	2020	LHD2	GAS	50	10243.72797	454.32179	408.889615	0.036%
Fresno	2020	LHD2	DSL	50	18654.84861	521.32553	469.192974	0.066%
Fresno	2020	LHD2	GAS	55	2817.508813	482.4155	434.173947	0.010%
Fresno	2020	LHD2	DSL	55	11234.11873	521.32552	469.192971	0.040%
Fresno	2020	MCY	GAS	5	16.68688392	263.60959	237.248635	0.000%
Fresno	2020	MCY	GAS	10	294.4601557	239.987	215.988302	0.001%
Fresno	2020	MCY	GAS	15	137.6083261	203.31025	182.979225	0.000%
Fresno	2020	MCY	GAS	20	8680.359343	177.28794	159.559145	0.031%
Fresno	2020	MCY	GAS	25	1758.264929	159.11187	143.200685	0.006%
Fresno	2020	MCY	GAS	30	4056.627639	147.00431	132.303882	0.014%
Fresno	2020	MCY	GAS	35	13991.15637	139.89607	125.906467	0.049%
Fresno	2020	MCY	GAS	40	23275.16288	137.24882	123.523938	0.082%
Fresno	2020	MCY	GAS	45	20382.35374	138.97664	125.078975	0.072%
Fresno	2020	MCY	GAS	50	27895.39084	145.4486	130.903738	0.099%
Fresno	2020	MCY	GAS	55	18574.45022	157.57522	141.817698	0.066%
Fresno	2020	MCY	GAS	60	22989.80272	177.00467	159.304207	0.081%
Fresno	2020	MCY	GAS	65	23486.72339	206.48665	185.837981	0.083%
Fresno	2020	MCY	GAS	70	22074.1257	250.51598	225.464381	0.078%
Fresno	2020	MDV	GAS	5	427.4652288	1956.688	1525.97278	0.002%
Fresno	2020	MDV	DSL	5	0.333527873	490.28924	377.108778	0.000%
Fresno	2020	MDV	GAS	10	7543.139266	1446.2357	1127.90657	0.027%
Fresno	2020	MDV	DSL	10	5.885501367	446.28971	343.748967	0.000%
Fresno	2020	MDV	GAS	15	3525.090445	1110.5412	866.11421	0.012%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	MDV	DSL	15	2.75043645	380.1288	293.586725	0.000%
Fresno	2020	MDV	GAS	20	222363.35	890.39433	694.407181	0.786%
Fresno	2020	MDV	DSL	20	173.4980433	335.55537	259.791799	0.001%
Fresno	2020	MDV	GAS	25	45041.19318	741.97753	578.642654	0.159%
Fresno	2020	MDV	DSL	25	35.14319288	306.59881	237.837356	0.000%
Fresno	2020	MDV	GAS	30	103917.9823	636.78632	496.616032	0.367%
Fresno	2020	MDV	DSL	30	81.08154619	289.65159	224.98822	0.000%
Fresno	2020	MDV	GAS	35	358409.259	568.60891	443.447127	1.267%
Fresno	2020	MDV	DSL	35	279.6472728	282.71202	219.726732	0.001%
Fresno	2020	MDV	GAS	40	596236.1499	526.15478	410.342796	2.108%
Fresno	2020	MDV	DSL	40	465.2106216	284.9856	221.450527	0.002%
Fresno	2020	MDV	GAS	45	522131.5284	506.29265	394.85277	1.846%
Fresno	2020	MDV	DSL	45	407.3908075	296.73091	230.355656	0.001%
Fresno	2020	MDV	GAS	50	714591.7653	506.04172	394.655526	2.526%
Fresno	2020	MDV	DSL	50	557.5570769	319.30972	247.474579	0.002%
Fresno	2020	MDV	GAS	55	475818.7393	524.73439	409.233126	1.682%
Fresno	2020	MDV	DSL	55	371.2554625	355.45334	274.878147	0.001%
Fresno	2020	MDV	GAS	60	588926.1182	564.34648	440.127202	2.082%
Fresno	2020	MDV	DSL	60	459.5070332	409.81987	316.098065	0.002%
Fresno	2020	MDV	GAS	65	601655.6237	630.1431	491.441651	2.127%
Fresno	2020	MDV	DSL	65	469.4391087	490.00332	376.891997	0.002%
Fresno	2020	MDV	GAS	70	565469.2796	675.65501	526.934139	1.999%
Fresno	2020	MDV	DSL	70	441.2049752	608.30305	466.585136	0.002%
Fresno	2020	MH	GAS	5	375.9017657	2513.4973	2262.14753	0.001%
Fresno	2020	MH	DSL	5	74.62377466	2390.0672	2151.06044	0.000%
Fresno	2020	MH	GAS	10	1889.661497	2036.1283	1832.51547	0.007%
Fresno	2020	MH	DSL	10	371.4490664	2170.188	1953.16921	0.001%
Fresno	2020	MH	GAS	15	2386.966339	1392.4297	1253.18671	0.008%
Fresno	2020	MH	DSL	15	501.3272751	1781.9066	1603.71592	0.002%
Fresno	2020	MH	GAS	20	2475.870442	1006.0686	905.461738	0.009%
Fresno	2020	MH	DSL	20	531.6758273	1462.2599	1316.03391	0.002%
Fresno	2020	MH	GAS	25	2758.692156	768.01205	691.210843	0.010%
Fresno	2020	MH	DSL	25	553.719262	1311.5663	1180.40971	0.002%
Fresno	2020	MH	GAS	30	3119.094445	619.43361	557.490248	0.011%
Fresno	2020	MH	DSL	30	665.8025648	1231.0993	1107.98936	0.002%
Fresno	2020	MH	GAS	35	3876.560955	527.84661	475.061951	0.014%
Fresno	2020	MH	DSL	35	785.0689398	1164.3217	1047.88949	0.003%
Fresno	2020	MH	GAS	40	4825.918952	475.2332	427.709878	0.017%
Fresno	2020	MH	DSL	40	974.5408363	1111.2334	1000.11009	0.003%
Fresno	2020	MH	GAS	45	4400.908252	452.05585	406.850268	0.016%
Fresno	2020	MH	DSL	45	798.019717	1071.8346	964.651153	0.003%
Fresno	2020	MH	GAS	50	4282.988184	454.32186	408.889674	0.015%
Fresno	2020	MH	DSL	50	893.1138315	1046.1252	941.512654	0.003%
Fresno	2020	MH	GAS	55	5601.758146	482.41557	434.174012	0.020%
Fresno	2020	MH	DSL	55	1308.777391	1034.1051	930.694616	0.005%
Fresno	2020	MH	GAS	60	6464.173618	541.20922	487.088296	0.023%
Fresno	2020	MH	DSL	60	1572.715418	1035.7744	932.196962	0.006%
Fresno	2020	MH	GAS	65	1010.10891	641.49794	577.348142	0.004%
Fresno	2020	MH	DSL	65	247.5006536	1051.1334	946.020045	0.001%
Fresno	2020	OBUS	GAS	5	223.1933909	2513.4974	2262.14768	0.001%
Fresno	2020	OBUS	DSL	5	189.4743925	3023.7787	2721.40084	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	OBUS	GAS	10	1121.995179	2036.1283	1832.51547	0.004%
Fresno	2020	OBUS	DSL	10	873.8793826	2435.1748	2191.65732	0.003%
Fresno	2020	OBUS	GAS	15	1417.27225	1392.4297	1253.18671	0.005%
Fresno	2020	OBUS	DSL	15	1150.490893	1981.8507	1783.66567	0.004%
Fresno	2020	OBUS	GAS	20	1470.059473	1006.0686	905.461718	0.005%
Fresno	2020	OBUS	DSL	20	1535.69351	1680.0018	1512.00159	0.005%
Fresno	2020	OBUS	GAS	25	1637.986093	768.01209	691.210882	0.006%
Fresno	2020	OBUS	DSL	25	1593.312243	1565.8826	1409.29435	0.006%
Fresno	2020	OBUS	GAS	30	1851.976584	619.43366	557.490296	0.007%
Fresno	2020	OBUS	DSL	30	2222.551712	1524.477	1372.02928	0.008%
Fresno	2020	OBUS	GAS	35	2301.725777	527.84661	475.061952	0.008%
Fresno	2020	OBUS	DSL	35	3281.369258	1506.8029	1356.12259	0.012%
Fresno	2020	OBUS	GAS	40	2865.411437	475.23323	427.709905	0.010%
Fresno	2020	OBUS	DSL	40	3502.618858	1398.0016	1258.20144	0.012%
Fresno	2020	OBUS	GAS	45	2613.059424	452.05584	406.850252	0.009%
Fresno	2020	OBUS	DSL	45	3919.848541	1422.5072	1280.25645	0.014%
Fresno	2020	OBUS	GAS	50	2543.043925	454.32186	408.889677	0.009%
Fresno	2020	OBUS	DSL	50	4186.335389	1378.9402	1241.04618	0.015%
Fresno	2020	OBUS	GAS	55	3326.069877	482.41555	434.173991	0.012%
Fresno	2020	OBUS	DSL	55	5486.643759	1338.9738	1205.07644	0.019%
Fresno	2020	OBUS	GAS	60	3838.132886	541.2092	487.088281	0.014%
Fresno	2020	OBUS	DSL	60	3711.118326	1163.509	1047.15807	0.013%
Fresno	2020	OBUS	GAS	65	599.756791	641.49795	577.348151	0.002%
Fresno	2020	OBUS	DSL	65	966.0730169	1343.8417	1209.45751	0.003%
Fresno	2020	SBUS	GAS	5	58.03696424	2513.497	2262.14732	0.000%
Fresno	2020	SBUS	DSL	5	153.6039937	2632.2332	2369.0099	0.001%
Fresno	2020	SBUS	GAS	10	203.4165827	2036.1281	1832.5153	0.001%
Fresno	2020	SBUS	DSL	10	538.3741248	2174.4303	1956.98731	0.002%
Fresno	2020	SBUS	GAS	15	406.8331817	1392.4295	1253.18659	0.001%
Fresno	2020	SBUS	DSL	15	1076.74825	1785.3958	1606.85622	0.004%
Fresno	2020	SBUS	GAS	20	552.2098641	1006.0685	905.461668	0.002%
Fresno	2020	SBUS	DSL	20	1461.510625	1408.4997	1267.64973	0.005%
Fresno	2020	SBUS	GAS	25	871.7004002	768.0121	691.21089	0.003%
Fresno	2020	SBUS	DSL	25	2307.092737	1314.1617	1182.74553	0.008%
Fresno	2020	SBUS	GAS	30	1045.811315	619.43358	557.490219	0.004%
Fresno	2020	SBUS	DSL	30	2767.904718	1233.5395	1110.18552	0.010%
Fresno	2020	SBUS	GAS	35	1073.393783	527.84651	475.061863	0.004%
Fresno	2020	SBUS	DSL	35	2840.905979	1166.633	1049.96972	0.010%
Fresno	2020	SBUS	GAS	40	724.5975211	475.23316	427.709842	0.003%
Fresno	2020	SBUS	DSL	40	1917.761723	1113.4423	1002.09811	0.007%
Fresno	2020	SBUS	GAS	45	347.6444581	452.05579	406.850211	0.001%
Fresno	2020	SBUS	DSL	45	920.0959117	1073.9674	966.570693	0.003%
Fresno	2020	SBUS	GAS	50	174.1108852	454.32177	408.889594	0.001%
Fresno	2020	SBUS	DSL	50	460.811981	1048.2083	943.387475	0.002%
Fresno	2020	SBUS	GAS	55	259.1529318	482.41547	434.173922	0.001%
Fresno	2020	SBUS	DSL	55	685.8891861	1036.165	932.548455	0.002%
Fresno	2020	SBUS	GAS	60	144.2307875	541.2091	487.088192	0.001%
Fresno	2020	SBUS	DSL	60	381.7295431	1037.8374	934.05363	0.001%
Fresno	2020	T6	GAS	5	757.7971042	2513.4975	2262.14774	0.003%
Fresno	2020	T6	DSL	5	3782.072492	2577.8739	2320.08648	0.013%
Fresno	2020	T6	GAS	10	3809.452781	2036.1283	1832.51547	0.013%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2020	T6	DSL	10	18825.7321	2129.5253	1916.57274	0.067%
Fresno	2020	T6	GAS	15	4811.99169	1392.4297	1253.18675	0.017%
Fresno	2020	T6	DSL	15	25408.20417	1748.5248	1573.67236	0.090%
Fresno	2020	T6	GAS	20	4991.217479	1006.0686	905.46177	0.018%
Fresno	2020	T6	DSL	20	26946.3239	1379.4122	1241.47096	0.095%
Fresno	2020	T6	GAS	25	5561.370137	768.01215	691.210939	0.020%
Fresno	2020	T6	DSL	25	28063.52768	1287.0224	1158.32015	0.099%
Fresno	2020	T6	GAS	30	6287.921467	619.43362	557.49026	0.022%
Fresno	2020	T6	DSL	30	33744.11845	1208.0651	1087.25862	0.119%
Fresno	2020	T6	GAS	35	7814.932614	527.84653	475.061878	0.028%
Fresno	2020	T6	DSL	35	39788.75993	1142.5404	1028.28635	0.141%
Fresno	2020	T6	GAS	40	9728.784867	475.23324	427.709914	0.034%
Fresno	2020	T6	DSL	40	49391.55144	1090.4482	981.403359	0.175%
Fresno	2020	T6	GAS	45	8871.986895	452.05589	406.850299	0.031%
Fresno	2020	T6	DSL	45	40445.13139	1051.7885	946.609636	0.143%
Fresno	2020	T6	GAS	50	8634.26726	454.32179	408.889615	0.031%
Fresno	2020	T6	DSL	50	45264.67932	1026.5613	923.905185	0.160%
Fresno	2020	T6	GAS	55	11292.83405	482.4156	434.174038	0.040%
Fresno	2020	T6	DSL	55	66331.28571	1014.7667	913.290006	0.235%
Fresno	2020	T6	GAS	60	13031.41533	541.20926	487.088332	0.046%
Fresno	2020	T6	DSL	60	79708.15566	1016.4046	914.764098	0.282%
Fresno	2020	T6	GAS	65	2036.323575	641.49801	577.34821	0.007%
Fresno	2020	T6	DSL	65	12543.79741	1031.475	928.327461	0.044%
Fresno	2020	T7	GAS	5	45.14811148	2513.4971	2262.14736	0.000%
Fresno	2020	T7	DSL	5	8396.704746	3977.8081	3580.02731	0.030%
Fresno	2020	T7	GAS	10	220.662119	2036.1283	1832.51544	0.001%
Fresno	2020	T7	DSL	10	32075.80037	3285.9804	2957.38233	0.113%
Fresno	2020	T7	GAS	15	240.6355065	1392.4297	1253.18671	0.001%
Fresno	2020	T7	DSL	15	39228.96626	2698.0747	2428.26726	0.139%
Fresno	2020	T7	GAS	20	411.241983	1006.0685	905.461655	0.001%
Fresno	2020	T7	DSL	20	97100.08386	2129.5835	1916.62514	0.343%
Fresno	2020	T7	GAS	25	536.6970104	768.01215	691.210933	0.002%
Fresno	2020	T7	DSL	25	88604.77385	1985.9498	1787.35483	0.313%
Fresno	2020	T7	GAS	30	980.1093934	619.43364	557.490278	0.003%
Fresno	2020	T7	DSL	30	149589.5276	1864.1142	1677.70278	0.529%
Fresno	2020	T7	GAS	35	1743.255924	527.84661	475.061945	0.006%
Fresno	2020	T7	DSL	35	269115.3006	1763.0057	1586.70517	0.951%
Fresno	2020	T7	GAS	40	1519.637782	475.23317	427.709849	0.005%
Fresno	2020	T7	DSL	40	253966.6678	1682.6245	1514.36201	0.898%
Fresno	2020	T7	GAS	45	1607.939024	452.0558	406.850223	0.006%
Fresno	2020	T7	DSL	45	355569.7933	1622.9703	1460.67329	1.257%
Fresno	2020	T7	GAS	50	1682.35955	454.3218	408.889618	0.006%
Fresno	2020	T7	DSL	50	369783.8463	1584.0433	1425.63901	1.307%
Fresno	2020	T7	GAS	55	2469.579288	482.41551	434.173958	0.009%
Fresno	2020	T7	DSL	55	450928.7666	1565.8435	1409.25918	1.594%
Fresno	2020	T7	GAS	60	609.4964239	541.20921	487.088286	0.002%
Fresno	2020	T7	DSL	60	137368.6558	1568.3709	1411.53379	0.486%
Fresno	2020	T7	GAS	65	326.6774339	641.49796	577.348164	0.001%
Fresno	2020	T7	DSL	65	75239.57125	1591.6254	1432.46284	0.266%
Fresno	2020	UBUS	GAS	5	142.5170016	2513.497	2262.14729	0.001%
Fresno	2020	UBUS	DSL	5	351.317801	2440.8645	2196.77806	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2020	UBUS	GAS	10	511.5367803	2036.1283	1832.51547	0.002%
Fresno	2020	UBUS	DSL	10	1260.986146	2440.8645	2196.77804	0.004%
Fresno	2020	UBUS	GAS	15	1023.073523	1392.4297	1253.18671	0.004%
Fresno	2020	UBUS	DSL	15	2521.972627	2440.8642	2196.77781	0.009%
Fresno	2020	UBUS	GAS	20	1350.100402	1006.0686	905.461701	0.005%
Fresno	2020	UBUS	DSL	20	3328.12413	2440.8647	2196.77822	0.012%
Fresno	2020	UBUS	GAS	25	2033.347957	768.01208	691.210868	0.007%
Fresno	2020	UBUS	DSL	25	5012.394	2440.8646	2196.77812	0.018%
Fresno	2020	UBUS	GAS	30	2544.884591	619.43361	557.490252	0.009%
Fresno	2020	UBUS	DSL	30	6273.37969	2440.8644	2196.77797	0.022%
Fresno	2020	UBUS	GAS	35	2493.975603	527.84654	475.061885	0.009%
Fresno	2020	UBUS	DSL	35	6147.88385	2440.8645	2196.77802	0.022%
Fresno	2020	UBUS	GAS	40	1797.928884	475.23316	427.709842	0.006%
Fresno	2020	UBUS	DSL	40	4432.06321	2440.8647	2196.77821	0.016%
Fresno	2020	UBUS	GAS	45	783.7715293	452.05586	406.850272	0.003%
Fresno	2020	UBUS	DSL	45	1932.070593	2440.8644	2196.77797	0.007%
Fresno	2020	UBUS	GAS	50	398.2134972	454.3218	408.889617	0.001%
Fresno	2020	UBUS	DSL	50	981.633661	2440.8646	2196.77811	0.003%
Fresno	2020	UBUS	GAS	55	493.7042317	482.41551	434.173958	0.002%
Fresno	2020	UBUS	DSL	55	1217.027328	2440.8644	2196.77795	0.004%
Fresno	2020	UBUS	GAS	60	808.0757296	541.20919	487.088268	0.003%
Fresno	2020	UBUS	DSL	60	1991.982525	2440.8644	2196.778	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide	0.445
Methane	0.000031
Nitrous oxide	0.000011

Used 2010 emission factor projected by PG&E for BAU

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	1,694,412,000	2,610	377007	26.3	9.3	345,142
Commercial	1,800,825,042	7,503	400684	27.9	9.9	366,817
Industrial	0		0	0.0	0.0	0
Total	3,495,237,042		777,690	54.2	19.2	711,959

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	89,589,600	138	524,099	49.3	1.0	476,679
Commercial	96,725,642	403	565,845	53.2	1.1	514,647
Industrial	0		0	0.0	0.0	0
Total	186,315,242		1,089,944	102.5	2.0	991,326

Sources:

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Emission factors for carbon dioxide from: PG&E 2013. Pacific Gas and Electric Company. ; PG&E. 2013. Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

- Per capita emission rates are from the year 2010 based on actual usage from PG&E. The electricity and natural gas usage for this year are calculated as the per capita rate multiplied by the projected population.

Community Greenhouse Gas Inventory

Offroad Equipment

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,082,000	968	0.0663	0.0093	882
Fresno	649,200	581	0	0	529
Percent Fresno/Fresno County	60.0%				

Other Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,082,000	1,085	0.291	0.08810	1,015
Fresno	649,200	651	0	0	609
Percent Fresno/Fresno County	60.0%				

Total Fresno 1,138

Notes:

Emissions for Fresno County are from OFFROAD2007 for the year assessed; emissions from Fresno are apportioned based on population.

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2020

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

Emissions (MMTCO ₂ e)	36.11
Population	40,643,643
Emissions (MTCO ₂ e per person)	0.89

Fresno

Population	649,200
Emissions (MTCO ₂ e per person) (estimated by using California per person emissions)	576,784

Sources/Notes:

California Emissions from: California Air Resources Board. 2010. California GHG Emissions - Forecast (2008-2020) Website: http://www.arb.ca.gov/cc/inventory/data/tables/2020_ghg_emissions_forecast_2010-10-28.pdf

Accessed August 19, 2013.

California Population: California Department of Finance (DOF). 2013. Total Population Projections for California and Counties: July 1, 2015 to 2060 in 5-year Increments. Website:

http://www.dof.ca.gov/research/demographic/reports/projections/P-1/documents/Projections_Press_Release_2010-2060.pdf. Accessed August 19, 2013.

Community Greenhouse Gas Inventory

Summary

Year: 2035

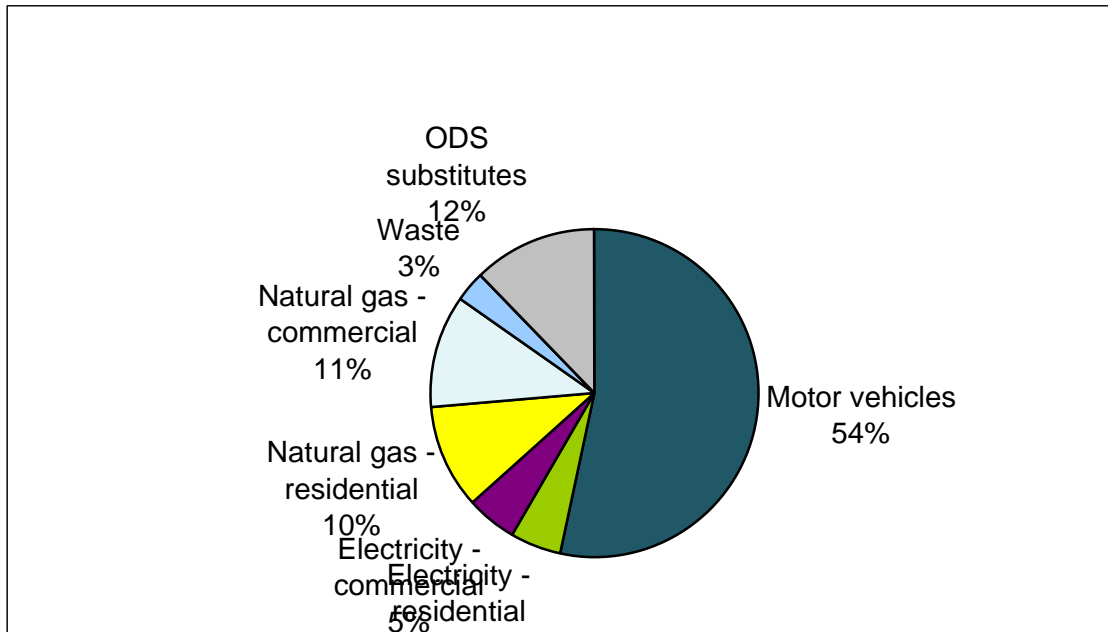
Prepared by FirstCarbon Solutions

	Data	Source
City Information		
Population	780,600	Fresno COG
Employment	294,822	
County Information		
Population	1,301,000	Fresno COG

-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050. Produced under contract by: The Planning Center|DC&E. March 2012.

-Employment: Took the 2010 population (545,000) and 2010 employment (183,825) and cross multiplied with the 2035 population (780,600) and the 2035 employment number (X).

Emissions (MTCO2e/year)	Without Regulation	With Pavley I and LCFS	Without RPS
Motor vehicles	3,036,848	2,205,409	3,036,848
Electricity - residential	271,756	271,756	315,237
Electricity - commercial	295,057	295,057	342,266
Natural gas - residential	573,160	519,166	519,166
Natural gas - commercial	632,169	564,560	632,169
Waste	177,508	177,508	177,508
Offroad equipment	1,314	1,314	1,314
ODS substitutes	694,734	694,734	694,734
<u>Total</u>	<u>5,682,546</u>	<u>4,729,504</u>	<u>5,719,242</u>



Community Greenhouse Gas Inventory

Waste

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Emissions

Emissions (MTCO ₂ e)*	177,508	
Emissions (MTCO ₂ e/person)	0.2274	2010 waste emissions per person

Notes:

*Emissions were calculated by multiplying the 2010 per capita rate by the population for this year.

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **14,989,208** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 5,471,060,920 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,044	0	1,044	5
5 - 10 MPH	867	1,014	0	1,881	5
10 - 15 MPH	169,023	218,185	464,023	851,231	10
15 - 20 MPH	5,711	8,451	8,927	23,089	15
20 - 25 MPH	24,991	41,774	71,218	137,984	20
25 - 30 MPH	102,076	135,165	293,694	530,936	25
30 - 35 MPH	113,130	179,032	223,639	515,800	30
35 - 40 MPH	666,413	863,471	1,739,931	3,269,815	35
40 - 45 MPH	298,021	363,660	798,881	1,460,562	40
45 - 50 MPH	253,522	334,066	983,905	1,571,493	45
50 - 55 MPH	137,117	193,692	466,238	797,047	50
55 - 60 MPH	608,586	723,611	1,711,520	3,043,717	55
60 - 65 MPH	583,433	724,771	1,476,213	2,784,416	60
65 - 70 MPH	33	43	116	191	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,962,924	3,787,978	8,238,306	14,989,208	

Source:
 Fehr and Peers. 2013. 2035 VMT was found by using multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 25 years of VMT growth between 2010 and 2035 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $(((2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years}) = .0248)$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2925	851231	23089	137984	530936	515800	3269815	1460562	1571493	797047	3043717	2784416	191	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.91%	0.12%	GAS Heavy duty 0.6% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.52%	0.01%	Light trucks 42.4% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.24%	0.01%	Passenger 44.6% LDA, MCY
LHD1	2.67%	1.63%	DSL Heavy duty 10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.43%	Light trucks 2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.68%	0.00%	Passenger 0.1% LDA, MCY
MDV	16.67%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.09%	0.11%	
SBUS	0.02%	0.04%	
T6	0.30%	1.69%	
T7	0.03%	8.18%	
UBUS	0.05%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1132	834	647	514	428	368	328	303	292	292	303	326	364	390	0
LDT1		1315	969	751	598	497	428	382	353	340	339	352	379	423	453	0
LDT2		1538	1134	878	699	582	500	446	412	397	397	412	443	494	530	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		266	242	205	179	161	149	142	139	142	149	162	183	215	262	0
MDV		1970	1452	1125	895	745	641	572	528	509	508	527	567	633	679	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		504	455	382	332	300	281	274	276	289	314	354	415	504	635	0
LDT1		505	456	382	332	300	281	273	276	289	314	354	415	505	637	0
LDT2		503	454	381	332	300	282	274	277	290	314	354	414	502	632	0
LHD1		519	519	519	519	519	519	519	519	519	519	519	0	0	0	0
LHD2		519	519	519	519	519	519	519	519	519	519	519	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		504	455	382	332	300	281	273	276	289	314	354	415	504	635	0
MH		2409	2188	1796	1474	1322	1241	1174	1120	1081	1055	1042	1044	1060	0	0
OBUS		3001	2416	1966	1668	1554	1513	1496	1388	1413	1369	1330	1155	1334	0	0
SBUS		2617	2162	1775	1401	1307	1227	1160	1107	1068	1042	1030	1032	0	0	0
T6		2560	2115	1736	1370	1278	1200	1135	1083	1044	1019	1008	1009	1024	0	0
T7		3956	3268	2684	2117	1975	1854	1754	1674	1614	1576	1557	1560	1583	0	0
UBUS		2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1284	373772	10138	60588	233131	226486	1435760	641326	690035	349980	1336482	1222624	84	0	0
LDT1		191	55478	1505	8993	34603	33617	213105	95190	102420	51946	198370	181470	12	0	0
LDT2		475	138240	3750	22409	86224	83766	531018	237195	255210	129440	494299	452189	31	0	0
LHD1		78	22763	617	3690	14198	13793	87439	39057	42024	21314	81393	74459	5	0	0
LHD2		8	2273	62	368	1418	1377	8732	3900	4197	2129	8128	7436	1	0	0
MCY		20	5820	158	943	3630	3526	22355	9985	10744	5449	20809	19036	1	0	0
MDV		488	141928	3850	23006	88524	86001	545186	243524	262020	132894	507488	464254	32	0	0
MH		4	1293	35	210	807	784	4968	2219	2387	1211	4624	4230	0	0	0
OBUS		3	782	21	127	488	474	3006	1343	1445	733	2798	2560	0	0	0
SBUS		1	177	5	29	110	107	679	303	326	166	632	578	0	0	0
T6		9	2531	69	410	1579	9723	4343	4673	2370	9051	8280	1	0	0	0
T7		1	291	8	47	181	176	1117	499	537	272	1040	951	0	0	0
UBUS		1	434	12	70	271	263	1666	744	801	406	1551	1419	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		3	997	27	162	622	604	3831	1711	1841	934	3566	3263	0	0	0
LDT1		0	74	2	12	46	45	283	126	136	69	263	241	0	0	0
LDT2		0	62	2	10	39	38	239	107	115	58	223	204	0	0	0
LHD1		48	13911	377	2255	8677	8429	53436	23869	25682	13026	49741	45504	3	0	0
LHD2		13	3667	99	594	2287	2222	14087	6292	6770	3434	13113	11996	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	111	3	18	69	67	425	190	204	104	396	362	0	0	0
MH		1	280	8	45	174	169	1074	480	516	262	1000	915	0	0	0
OBUS		3	951	26	154	593	577	3655	1632	1756	891	3402	3112	0	0	0
SBUS		1	348	9	56	217	211	1337	597	642	326	1244	1138	0	0	0
T6		49	14362	390	2328	8958	8703	55170	24643	26515	13448	51355	46980	3	0	0
T7		239	69617	1888	11285	43422	42184	267417	119450	128522	65185	248926	227720	16	0	0
UBUS		4	1069	29	173	667	648	4107	1835	1974	1001	3823	3497	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		584	125,207	2,632	12,514	40,093	33,484	189,354	78,142	80,989	41,049	162,603	159,987	12	0	0	926,067
LDT1		101	21,588	454	2,157	6,911	5,772	32,644	13,473	13,964	7,077	28,034	27,583	2	0	0	159,661
LDT2		293	62,914	1,322	6,287	20,142	16,822	95,135	39,264	40,694	20,625	81,699	80,386	6	0	0	465,297
LHD1		79	18,609	345	1,490	4,378	3,430	18,531	7,452	7,627	3,888	15,765	0	0	0	0	81,517

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	8	1,858	34	149	437	343	1,851	744	762	388	1,574	0	0	0	0	8,141
MCY	2	566	13	68	234	210	1,272	559	611	326	1,356	1,400	0	0	0	6,615
MDV	386	82,755	1,739	8,270	26,493	22,126	125,134	51,647	53,527	27,129	107,463	105,736	8	0	0	612,028
MH	4	1,057	20	85	249	195	1,053	423	433	221	896	919	0	0	0	5,550
OBUS	3	640	12	51	150	118	637	256	262	134	542	556	0	0	0	3,358
SBUS	1	145	3	12	34	27	144	58	59	30	122	126	0	0	0	759
T6	9	2,069	38	166	487	381	2,061	829	848	432	1,753	1,799	0	0	0	10,864
T7	1	238	4	19	56	44	237	95	97	50	201	207	0	0	0	1,248
UBUS	2	355	7	28	83	65	353	142	145	74	300	308	0	0	0	1,862
Total	1,471	318,002	6,622	31,296	99,748	83,017	468,405	193,086	200,021	101,423	402,309	379,007	29	0	0	2,284,436
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	182	4	22	75	68	421	190	214	118	507	543	0	0	0	2,344
LDT1	0	13	0	2	6	5	31	14	16	9	37	40	0	0	0	173
LDT2	0	11	0	1	5	4	26	12	13	7	32	34	0	0	0	146
LHD1	10	2,899	79	470	1,808	1,757	11,136	4,974	5,352	2,714	10,366	0	0	0	0	41,555
LHD2	3	764	21	124	477	463	2,936	1,311	1,411	716	2,733	0	0	0	0	10,956
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	20	0	2	8	8	47	21	24	13	56	60	0	0	0	260
MH	1	246	5	27	93	84	506	216	224	111	419	384	0	0	0	2,314
OBUS	4	923	20	103	370	350	2,196	910	996	490	1,816	1,443	0	0	0	9,618
SBUS	1	302	7	32	114	104	623	265	275	136	515	472	0	0	0	2,845
T6	51	12,194	272	1,280	4,597	4,192	25,132	10,714	11,119	5,504	20,778	19,039	1	0	0	114,823
T7	380	91,355	2,035	9,592	34,437	31,403	188,276	80,265	83,299	41,235	155,658	142,627	10	0	0	860,192
UBUS	3	987	27	160	616	598	3,792	1,694	1,822	924	3,530	3,229	0	0	0	17,380
Total	454	109,898	2,470	11,815	42,605	39,037	235,122	100,586	104,766	51,978	196,447	167,870	11	0	0	1,063,059

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	3,347,495	3,036,848	3,036,848

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **14,989,208** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 5,471,060,920 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.48% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,034	0	1,034	5
5 - 10 MPH	859	1,004	0	1,863	5
10 - 15 MPH	167,394	216,081	459,549	843,024	10
15 - 20 MPH	5,656	8,370	8,841	22,866	15
20 - 25 MPH	24,751	41,371	70,532	136,653	20
25 - 30 MPH	101,092	133,862	290,863	525,817	25
30 - 35 MPH	112,039	177,305	221,483	510,827	30
35 - 40 MPH	659,988	855,145	1,723,155	3,238,288	35
40 - 45 MPH	295,148	360,153	791,178	1,446,479	40
45 - 50 MPH	251,077	330,845	974,418	1,556,341	45
50 - 55 MPH	135,795	191,825	461,743	789,362	50
55 - 60 MPH	602,719	716,634	1,695,018	3,014,370	55
60 - 65 MPH	577,808	717,782	1,461,979	2,757,569	60
65 - 70 MPH	32	42	115	190	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,934,356	3,751,455	8,158,873	14,844,684	

Source:
 Fehr and Peers. 2013. 2035 VMT was found by using multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 25 years of VMT growth between 2010 and 2035 and adding that to the 2010 VMT.

Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $[(2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years} = .0248]$.

2010 VMT found by backcasting the

2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2897	843024	22866	136653	525817	510827	3238288	1446479	1556341	789362	3014370	2757569	190	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.91%	0.12%	0.6% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.52%	0.01%	42.4% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.24%	0.01%	44.6% LDA, MCY
LHD1	2.67%	1.63%	10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.43%	2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.68%	0.00%	0.1% LDA, MCY
MDV	16.67%	0.01%	
MH	0.15%	0.03%	
OBUS	0.09%	0.11%	
SBUS	0.02%	0.04%	
T6	0.30%	1.69%	
T7	0.03%	8.18%	
UBUS	0.05%	0.13%	
Total			100.0%

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		673	496	385	306	255	219	195	180	174	174	180	194	216	232	0
LDT1		801	590	457	364	303	260	232	215	207	207	214	231	257	276	0
LDT2		1045	770	597	475	395	340	303	280	270	270	280	301	336	360	0
LHD1		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
LHD2		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
MCY		240	218	185	161	144	134	128	125	128	134	146	165	193	236	0
MDV		1370	1010	783	623	518	446	398	367	354	354	367	395	440	472	0
MH		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
OBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
SBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
T6		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
T7		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		304	274	230	200	181	170	165	167	175	190	214	250	304	383	0
LDT1		302	272	228	199	179	168	163	165	173	188	212	248	302	381	0
LDT2		343	310	260	227	205	193	188	189	198	215	242	283	343	431	0
LHD1		467	467	467	467	467	467	467	467	467	467	467	0	0	0	0
LHD2		467	467	467	467	467	467	467	467	467	467	467	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		348	315	264	230	207	194	189	191	200	217	245	287	348	439	0
MH		2169	1969	1617	1327	1190	1117	1056	1008	972	949	938	940	954	0	0
OBUS		2701	2175	1770	1501	1399	1362	1347	1249	1271	1232	1197	1039	1201	0	0
SBUS		2356	1946	1598	1261	1176	1104	1044	996	961	938	927	929	0	0	0
T6		2304	1903	1563	1233	1150	1080	1021	975	940	917	907	908	922	0	0
T7		3561	2942	2415	1905	1778	1669	1578	1506	1453	1418	1402	1404	1425	0	0
UBUS		2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1272	370168	10040	60004	230884	224302	1421917	635142	683382	346605	1323596	1210835	83	0	0
LDT1		189	54943	1490	8906	34269	33292	211050	94272	101432	51445	196457	179720	12	0	0
LDT2		470	136907	3713	22193	85393	82958	525898	234908	252750	128192	489533	447829	31	0	0
LHD1		77	22544	611	3654	14061	13660	86596	38681	41619	21109	80608	73741	5	0	0
LHD2		8	2251	61	365	1404	1364	8648	3863	4156	2108	8050	7364	1	0	0
MCY		20	5763	156	934	3595	3492	22139	9889	10640	5397	20608	18853	1	0	0
MDV		483	140560	3813	22785	87671	85172	539929	241176	259493	131613	502595	459777	32	0	0
MH		4	1281	35	208	799	776	4920	2198	2364	1199	4580	4189	0	0	0
OBUS		3	775	21	126	483	470	2977	1330	1431	726	2771	2535	0	0	0
SBUS		1	175	5	28	109	106	672	300	323	164	626	573	0	0	0
T6		9	2507	68	406	1564	1519	9629	4301	4628	2347	8964	8200	1	0	0
T7		1	288	8	47	180	174	1106	494	532	270	1029	942	0	0	0
UBUS		1	430	12	70	268	260	1650	737	793	402	1536	1405	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		3	988	27	160	616	599	3794	1695	1824	925	3532	3231	0	0	0
LDT1		0	73	2	12	45	44	280	125	135	68	261	238	0	0	0
LDT2		0	62	2	10	38	37	237	106	114	58	221	202	0	0	0
LHD1		47	13777	374	2233	8593	8348	52921	23639	25434	12900	49262	45065	3	0	0
LHD2		12	3632	99	589	2265	2201	13951	6232	6705	3401	12987	11880	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	110	3	18	68	66	421	188	202	103	392	358	0	0	0
MH		1	277	8	45	173	168	1064	475	511	259	991	906	0	0	0
OBUS		3	942	26	153	588	571	3619	1617	1740	882	3369	3082	0	0	0
SBUS		1	345	9	56	215	209	1324	591	636	323	1232	1127	0	0	0
T6		49	14224	386	2306	8872	8619	54638	24406	26259	13319	50860	46527	3	0	0
T7		237	68946	1870	11176	43003	41777	264839	118298	127283	64557	246526	225524	16	0	0
UBUS		4	1059	29	172	660	642	4067	1817	1955	991	3786	3464	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		344	73,750	1,550	7,371	23,616	19,722	111,533	46,027	47,704	24,178	95,776	94,236	7	0	0	545,471
LDT1		61	13,019	274	1,301	4,168	3,481	19,686	8,125	8,421	4,268	16,906	16,634	1	0	0	96,282
LDT2		197	42,332	890	4,231	13,553	11,319	64,012	26,419	27,381	13,878	54,972	54,088	4	0	0	313,078
LHD1		70	16,587	308	1,328	3,902	3,058	16,517	6,642	6,798	3,465	14,052	0	0	0	0	72,658

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	7	1,656	31	133	390	305	1,649	663	679	346	1,403	0	0	0	0	7,256
MCY	2	505	12	60	209	187	1,133	498	545	291	1,208	1,248	0	0	0	5,896
MDV	266	57,011	1,198	5,697	18,251	15,243	86,205	35,580	36,875	18,689	74,031	72,842	6	0	0	421,628
MH	4	942	17	75	222	174	938	377	386	197	798	819	0	0	0	4,947
OBUS	2	570	11	46	134	105	568	228	234	119	483	496	0	0	0	2,993
SBUS	1	129	2	10	30	24	128	52	53	27	109	112	0	0	0	676
T6	8	1,844	34	148	434	340	1,837	739	756	385	1,563	1,604	0	0	0	9,683
T7	1	212	4	17	50	39	211	85	87	44	179	184	0	0	0	1,112
UBUS	1	316	6	25	74	58	315	127	130	66	268	275	0	0	0	1,659
Total	964	208,872	4,336	20,443	65,031	54,055	304,733	125,563	130,049	65,954	261,749	242,537	19	0	0	1,484,303
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	0	109	2	13	45	41	252	113	128	70	303	324	0	0	0	1,401
LDT1	0	8	0	1	3	3	18	8	9	5	22	24	0	0	0	102
LDT2	0	8	0	1	3	3	18	8	9	5	21	23	0	0	0	99
LHD1	9	2,584	70	419	1,612	1,566	9,926	4,434	4,770	2,419	9,239	0	0	0	0	37,039
LHD2	2	681	18	110	425	413	2,617	1,169	1,258	638	2,436	0	0	0	0	9,765
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	14	0	2	6	5	32	14	16	9	39	41	0	0	0	178
MH	1	219	5	24	83	75	451	192	200	99	373	342	0	0	0	2,063
OBUS	4	823	18	92	330	312	1,957	811	888	437	1,619	1,286	0	0	0	8,572
SBUS	1	269	6	28	102	93	555	237	246	122	459	420	0	0	0	2,536
T6	45	10,869	242	1,141	4,097	3,736	22,401	9,550	9,911	4,906	18,520	16,970	1	0	0	102,344
T7	339	81,426	1,813	8,550	30,695	27,990	167,815	71,542	74,247	36,754	138,741	127,126	9	0	0	766,708
UBUS	3	880	24	143	549	533	3,380	1,510	1,624	824	3,146	2,878	0	0	0	15,491
Total	404	97,890	2,200	10,524	37,948	34,770	209,421	89,588	93,305	46,288	174,919	149,435	10	0	0	946,703

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	2,431,006	2,205,409	2,205,409

EMFAC 2011
 2035 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter:
 region - County: Fresno, year - 2035, season - annual average,
 vehicle category - EMFAC2007, model year - aggregated,
 speed - all speeds, fuel - all) Website:
<http://www.arb.ca.gov/emfac/>

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	LDA	GAS	5	690.6105816	1132.0738	673.304157	0.002%
Fresno	2035	LDA	DSL	5	1.8428816	503.98095	303.820128	0.000%
Fresno	2035	LDA	GAS	10	35638.70556	834.33041	496.221479	0.094%
Fresno	2035	LDA	DSL	10	95.10122957	455.13953	274.429687	0.000%
Fresno	2035	LDA	GAS	15	21241.01664	646.51746	384.518119	0.056%
Fresno	2035	LDA	DSL	15	56.68125803	381.69808	230.236122	0.000%
Fresno	2035	LDA	GAS	20	808500.6477	514.41562	305.950589	2.136%
Fresno	2035	LDA	DSL	20	2157.468978	332.21956	200.462311	0.006%
Fresno	2035	LDA	GAS	25	197184.9121	428.33796	254.755245	0.521%
Fresno	2035	LDA	DSL	25	526.184285	300.07648	181.120132	0.001%
Fresno	2035	LDA	GAS	30	537842.6996	368.21896	218.999388	1.421%
Fresno	2035	LDA	DSL	30	1435.223272	281.26432	169.799873	0.004%
Fresno	2035	LDA	GAS	35	1366088.421	328.47892	195.363966	3.608%
Fresno	2035	LDA	DSL	35	3645.382029	273.56113	165.164459	0.010%
Fresno	2035	LDA	GAS	40	1943582.491	303.47195	180.491197	5.134%
Fresno	2035	LDA	DSL	40	5186.414182	276.08485	166.683111	0.014%
Fresno	2035	LDA	GAS	45	1929011.91	292.32892	173.863779	5.095%
Fresno	2035	LDA	DSL	45	5147.532356	289.12263	174.528631	0.014%
Fresno	2035	LDA	GAS	50	2232462.568	292.1258	173.742948	5.897%
Fresno	2035	LDA	DSL	50	5957.284783	314.18613	189.610649	0.016%
Fresno	2035	LDA	GAS	55	1665080.069	303.02659	180.226197	4.398%
Fresno	2035	LDA	DSL	55	4443.235664	354.30714	213.753563	0.012%
Fresno	2035	LDA	GAS	60	1897400.144	325.91705	193.840412	5.012%
Fresno	2035	LDA	DSL	60	5063.177272	414.65641	250.068876	0.013%
Fresno	2035	LDA	GAS	65	2035032.499	363.783	216.361367	5.375%
Fresno	2035	LDA	DSL	65	5430.446516	503.66351	303.629111	0.014%
Fresno	2035	LDA	GAS	70	1953744.04	390.12334	232.027326	5.161%
Fresno	2035	LDA	DSL	70	5213.529627	634.9815	382.650018	0.014%
Fresno	2035	LDT1	GAS	5	102.505054	1314.7679	800.56989	0.000%
Fresno	2035	LDT1	DSL	5	0.136006444	504.82718	301.829718	0.000%
Fresno	2035	LDT1	GAS	10	5289.735537	969.2076	590.161462	0.014%
Fresno	2035	LDT1	DSL	10	7.018562029	455.72464	272.471938	0.000%
Fresno	2035	LDT1	GAS	15	3152.734078	750.8486	457.196034	0.008%
Fresno	2035	LDT1	DSL	15	4.183131754	381.89043	228.327408	0.000%
Fresno	2035	LDT1	GAS	20	120003.0938	597.5229	363.837256	0.317%
Fresno	2035	LDT1	DSL	20	159.223291	332.14738	198.586677	0.000%
Fresno	2035	LDT1	GAS	25	29267.50821	497.46337	302.908369	0.077%
Fresno	2035	LDT1	DSL	25	38.8329089	299.83242	179.265976	0.000%
Fresno	2035	LDT1	GAS	30	79830.22013	427.66259	260.40672	0.211%
Fresno	2035	LDT1	DSL	30	105.9208623	280.91966	167.958278	0.000%
Fresno	2035	LDT1	GAS	35	202764.0257	381.5275	232.315209	0.536%
Fresno	2035	LDT1	DSL	35	269.032684	273.17532	163.328035	0.001%
Fresno	2035	LDT1	GAS	40	288479.5847	352.52979	214.659347	0.762%
Fresno	2035	LDT1	DSL	40	382.762388	275.71251	164.844988	0.001%
Fresno	2035	LDT1	GAS	45	286316.8661	339.57319	206.769651	0.756%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	LDT1	DSL	45	379.892857	288.82002	172.681802	0.001%
Fresno	2035	LDT1	GAS	50	331357.0651	339.33117	206.622144	0.875%
Fresno	2035	LDT1	DSL	50	439.65337	314.01753	187.74707	0.001%
Fresno	2035	LDT1	GAS	55	247142.3572	351.98542	214.327262	0.653%
Fresno	2035	LDT1	DSL	55	327.915092	354.35305	211.86316	0.001%
Fresno	2035	LDT1	GAS	60	281624.8653	378.57999	230.521082	0.744%
Fresno	2035	LDT1	DSL	60	373.667387	415.02501	248.13815	0.001%
Fresno	2035	LDT1	GAS	65	302053.17	422.57263	257.308816	0.798%
Fresno	2035	LDT1	DSL	65	400.772191	504.50805	301.638916	0.001%
Fresno	2035	LDT1	GAS	70	289987.7843	453.15713	275.931745	0.766%
Fresno	2035	LDT1	DSL	70	384.763509	636.52822	380.57209	0.001%
Fresno	2035	LDT2	GAS	5	255.4230734	1537.7072	1044.72708	0.001%
Fresno	2035	LDT2	DSL	5	0.115068342	502.58125	342.876199	0.000%
Fresno	2035	LDT2	GAS	10	13181.01512	1133.5198	770.121871	0.035%
Fresno	2035	LDT2	DSL	10	5.938059729	454.17178	309.953162	0.000%
Fresno	2035	LDT2	GAS	15	7856.01344	878.16719	596.631776	0.021%
Fresno	2035	LDT2	DSL	15	3.539141521	381.37983	260.447709	0.000%
Fresno	2035	LDT2	GAS	20	299024.8642	698.82978	474.789734	0.790%
Fresno	2035	LDT2	DSL	20	134.7109823	332.33894	227.095244	0.000%
Fresno	2035	LDT2	GAS	25	72929.06082	581.81597	395.289098	0.193%
Fresno	2035	LDT2	DSL	25	32.8546126	300.48012	205.428217	0.000%
Fresno	2035	LDT2	GAS	30	198921.7045	500.17663	339.823036	0.525%
Fresno	2035	LDT2	DSL	30	89.6144222	281.83435	192.747317	0.000%
Fresno	2035	LDT2	GAS	35	505249.3773	446.2161	303.162106	1.335%
Fresno	2035	LDT2	DSL	35	227.615306	274.19932	187.554772	0.001%
Fresno	2035	LDT2	GAS	40	718836.1816	412.29527	280.11649	1.899%
Fresno	2035	LDT2	DSL	40	323.836374	276.70072	189.255964	0.001%
Fresno	2035	LDT2	GAS	45	713447.1657	397.14374	269.822318	1.885%
Fresno	2035	LDT2	DSL	45	321.408637	289.62318	198.044466	0.001%
Fresno	2035	LDT2	GAS	50	825678.7517	396.86153	269.630532	2.181%
Fresno	2035	LDT2	DSL	50	371.969048	314.46502	214.939279	0.001%
Fresno	2035	LDT2	GAS	55	615831.7597	411.66227	279.686188	1.627%
Fresno	2035	LDT2	DSL	55	277.432793	354.23118	241.984048	0.001%
Fresno	2035	LDT2	GAS	60	701755.5784	442.76497	300.817625	1.854%
Fresno	2035	LDT2	DSL	60	316.141556	414.0467	282.664287	0.001%
Fresno	2035	LDT2	GAS	65	752659.027	494.21508	335.773267	1.988%
Fresno	2035	LDT2	DSL	65	339.0736	502.26661	342.662214	0.001%
Fresno	2035	LDT2	GAS	70	722594.3024	529.98661	360.076591	1.909%
Fresno	2035	LDT2	DSL	70	325.529436	632.42323	431.181097	0.001%
Fresno	2035	LHD1	GAS	5	28730.83376	2513.4971	2262.14741	0.076%
Fresno	2035	LHD1	DSL	5	10879.47172	519.044	467.1396	0.029%
Fresno	2035	LHD1	GAS	10	74917.97247	2036.1283	1832.51546	0.198%
Fresno	2035	LHD1	DSL	10	36179.20697	519.04392	467.139527	0.096%
Fresno	2035	LHD1	GAS	15	170598.308	1392.4297	1253.18676	0.451%
Fresno	2035	LHD1	DSL	15	78353.78669	519.04397	467.139573	0.207%
Fresno	2035	LHD1	GAS	20	197125.0326	1006.0685	905.461657	0.521%
Fresno	2035	LHD1	DSL	20	85901.05561	519.04403	467.139624	0.227%
Fresno	2035	LHD1	GAS	25	151847.0565	768.01202	691.210821	0.401%
Fresno	2035	LHD1	DSL	25	91937.0507	519.04403	467.139624	0.243%
Fresno	2035	LHD1	GAS	30	134282.6251	619.43358	557.490222	0.355%
Fresno	2035	LHD1	DSL	30	77606.52044	519.04398	467.139584	0.205%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of
								Total VMT
Fresno	2035	LHD1	GAS	35	50176.54222	527.84646	475.061813	0.133%
Fresno	2035	LHD1	DSL	35	40955.97348	519.04399	467.13959	0.108%
Fresno	2035	LHD1	GAS	40	14810.97147	475.23314	427.70983	0.039%
Fresno	2035	LHD1	DSL	40	22483.49154	519.04403	467.139628	0.059%
Fresno	2035	LHD1	GAS	45	18233.60859	452.05583	406.850246	0.048%
Fresno	2035	LHD1	DSL	45	24267.07928	519.04407	467.139664	0.064%
Fresno	2035	LHD1	GAS	50	134634.4239	454.32182	408.889636	0.356%
Fresno	2035	LHD1	DSL	50	93702.88848	519.04402	467.139615	0.248%
Fresno	2035	LHD1	GAS	55	37030.82405	482.41548	434.17393	0.098%
Fresno	2035	LHD1	DSL	55	56428.72821	519.04399	467.139593	0.149%
Fresno	2035	LHD2	GAS	5	2869.22626	2513.4973	2262.14755	0.008%
Fresno	2035	LHD2	DSL	5	2868.083817	519.10791	467.197122	0.008%
Fresno	2035	LHD2	GAS	10	7481.739717	2036.1282	1832.51541	0.020%
Fresno	2035	LHD2	DSL	10	9537.686436	519.10792	467.197126	0.025%
Fresno	2035	LHD2	GAS	15	17036.93043	1392.4296	1253.1866	0.045%
Fresno	2035	LHD2	DSL	15	20655.89581	519.10791	467.197119	0.055%
Fresno	2035	LHD2	GAS	20	19686.03938	1006.0685	905.461663	0.052%
Fresno	2035	LHD2	DSL	20	22645.53381	519.10792	467.197126	0.060%
Fresno	2035	LHD2	GAS	25	15164.32093	768.01204	691.210836	0.040%
Fresno	2035	LHD2	DSL	25	24236.76085	519.10797	467.197177	0.064%
Fresno	2035	LHD2	GAS	30	13410.23552	619.43357	557.490209	0.035%
Fresno	2035	LHD2	DSL	30	20458.89806	519.10794	467.197147	0.054%
Fresno	2035	LHD2	GAS	35	5010.918084	527.84649	475.061841	0.013%
Fresno	2035	LHD2	DSL	35	10796.95529	519.10789	467.1971	0.029%
Fresno	2035	LHD2	GAS	40	1479.108812	475.23314	427.709828	0.004%
Fresno	2035	LHD2	DSL	40	5927.175615	519.10788	467.197088	0.016%
Fresno	2035	LHD2	GAS	45	1820.912953	452.05583	406.850243	0.005%
Fresno	2035	LHD2	DSL	45	6397.37166	519.1079	467.197108	0.017%
Fresno	2035	LHD2	GAS	50	13445.36839	454.32177	408.889595	0.036%
Fresno	2035	LHD2	DSL	50	24702.27926	519.10786	467.197078	0.065%
Fresno	2035	LHD2	GAS	55	3698.110984	482.41546	434.173911	0.010%
Fresno	2035	LHD2	DSL	55	14875.93575	519.1079	467.197112	0.039%
Fresno	2035	MCY	GAS	5	10.7527472	266.3941	239.754687	0.000%
Fresno	2035	MCY	GAS	10	554.8915779	242.30076	218.070684	0.001%
Fresno	2035	MCY	GAS	15	330.7208003	205.03074	184.52767	0.001%
Fresno	2035	MCY	GAS	20	12588.28568	178.73877	160.864893	0.033%
Fresno	2035	MCY	GAS	25	3070.152177	160.51344	144.462093	0.008%
Fresno	2035	MCY	GAS	30	8374.163837	148.52267	133.670406	0.022%
Fresno	2035	MCY	GAS	35	21269.87913	141.67529	127.507762	0.056%
Fresno	2035	MCY	GAS	40	30261.41652	139.43553	125.491979	0.080%
Fresno	2035	MCY	GAS	45	30034.5498	141.74257	127.568309	0.079%
Fresno	2035	MCY	GAS	50	34759.24992	149.01587	134.114283	0.092%
Fresno	2035	MCY	GAS	55	25925.15673	162.25023	146.025203	0.068%
Fresno	2035	MCY	GAS	60	29542.35713	183.22816	164.905344	0.078%
Fresno	2035	MCY	GAS	65	31685.28107	214.9121	193.42089	0.084%
Fresno	2035	MCY	GAS	70	30419.62513	262.13732	235.92359	0.080%
Fresno	2035	MDV	GAS	5	262.238077	1969.99	1370.33855	0.001%
Fresno	2035	MDV	DSL	5	0.204451984	504.23305	348.357588	0.000%
Fresno	2035	MDV	GAS	10	13532.69976	1452.2532	1010.20434	0.036%
Fresno	2035	MDV	DSL	10	10.55066914	455.31385	314.587226	0.000%
Fresno	2035	MDV	GAS	15	8065.620673	1125.0378	782.583902	0.021%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	MDV	DSL	15	6.28830171	381.75539	263.807654	0.000%
Fresno	2035	MDV	GAS	20	307003.1737	895.31583	622.79059	0.811%
Fresno	2035	MDV	DSL	20	239.3527774	332.19804	229.596761	0.001%
Fresno	2035	MDV	GAS	25	74874.88875	745.37717	518.48947	0.198%
Fresno	2035	MDV	DSL	25	58.3756578	300.00377	207.37211	0.000%
Fresno	2035	MDV	GAS	30	204229.1639	640.79385	445.741211	0.539%
Fresno	2035	MDV	DSL	30	159.2257691	281.16164	194.364833	0.000%
Fresno	2035	MDV	GAS	35	518729.9462	571.66991	397.658678	1.370%
Fresno	2035	MDV	DSL	35	404.4240135	273.44619	189.03863	0.001%
Fresno	2035	MDV	GAS	40	738015.5598	528.22783	367.441432	1.949%
Fresno	2035	MDV	DSL	40	575.3884012	275.97394	190.783609	0.002%
Fresno	2035	MDV	GAS	45	732482.7386	508.81188	353.935103	1.935%
Fresno	2035	MDV	DSL	45	571.0747511	289.03251	199.798324	0.002%
Fresno	2035	MDV	GAS	50	847708.7407	508.44835	353.682037	2.239%
Fresno	2035	MDV	DSL	50	660.909941	314.13588	217.127918	0.002%
Fresno	2035	MDV	GAS	55	632262.8254	527.40799	366.870322	1.670%
Fresno	2035	MDV	DSL	55	492.9390699	354.32083	244.868774	0.001%
Fresno	2035	MDV	GAS	60	720479.1957	567.25767	394.590335	1.903%
Fresno	2035	MDV	DSL	60	561.7163156	414.7662	286.595991	0.001%
Fresno	2035	MDV	GAS	65	772740.798	633.17673	440.444571	2.041%
Fresno	2035	MDV	DSL	65	602.4616994	503.91512	348.138109	0.002%
Fresno	2035	MDV	GAS	70	741873.9381	679.00227	472.320926	1.960%
Fresno	2035	MDV	DSL	70	578.3965673	635.44234	438.935218	0.002%
Fresno	2035	MH	GAS	5	497.3752863	2513.4973	2262.1476	0.001%
Fresno	2035	MH	DSL	5	100.0550334	2409.4505	2168.50544	0.000%
Fresno	2035	MH	GAS	10	2500.309919	2036.1282	1832.51539	0.007%
Fresno	2035	MH	DSL	10	498.0362855	2187.7883	1969.00946	0.001%
Fresno	2035	MH	GAS	15	3158.320021	1392.4296	1253.18668	0.008%
Fresno	2035	MH	DSL	15	672.1760852	1796.3577	1616.72197	0.002%
Fresno	2035	MH	GAS	20	3275.953644	1006.0686	905.461752	0.009%
Fresno	2035	MH	DSL	20	712.8672028	1474.1187	1326.70683	0.002%
Fresno	2035	MH	GAS	25	3650.169749	768.01215	691.210938	0.010%
Fresno	2035	MH	DSL	25	742.4228737	1322.2031	1189.98279	0.002%
Fresno	2035	MH	GAS	30	4127.036754	619.43365	557.490288	0.011%
Fresno	2035	MH	DSL	30	892.7034	1241.0834	1116.97508	0.002%
Fresno	2035	MH	GAS	35	5129.280755	527.84659	475.061927	0.014%
Fresno	2035	MH	DSL	35	1052.614868	1173.7643	1056.38785	0.003%
Fresno	2035	MH	GAS	40	6385.425554	475.23323	427.709904	0.017%
Fresno	2035	MH	DSL	40	1306.657549	1120.2454	1008.22088	0.003%
Fresno	2035	MH	GAS	45	5823.071722	452.05586	406.850274	0.015%
Fresno	2035	MH	DSL	45	1069.979251	1080.5271	972.474412	0.003%
Fresno	2035	MH	GAS	50	5667.045641	454.32184	408.889656	0.015%
Fresno	2035	MH	DSL	50	1197.480732	1054.6092	949.148305	0.003%
Fresno	2035	MH	GAS	55	7411.979173	482.41554	434.173983	0.020%
Fresno	2035	MH	DSL	55	1754.799517	1042.4917	938.242513	0.005%
Fresno	2035	MH	GAS	60	8553.086166	541.20922	487.088295	0.023%
Fresno	2035	MH	DSL	60	2108.685765	1044.1745	939.757077	0.006%
Fresno	2035	MH	GAS	65	1336.527842	641.49795	577.348151	0.004%
Fresno	2035	MH	DSL	65	331.8471551	1059.658	953.692172	0.001%
Fresno	2035	OBUS	GAS	5	300.9471355	2513.4972	2262.14751	0.001%
Fresno	2035	OBUS	DSL	5	245.7914613	3000.8453	2700.76078	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	OBUS	GAS	10	1512.863815	2036.1285	1832.51567	0.004%
Fresno	2035	OBUS	DSL	10	1133.620685	2416.3788	2174.74096	0.003%
Fresno	2035	OBUS	GAS	15	1911.006427	1392.4297	1253.18671	0.005%
Fresno	2035	OBUS	DSL	15	1492.448843	1966.4595	1769.81355	0.004%
Fresno	2035	OBUS	GAS	20	1982.183026	1006.0686	905.461765	0.005%
Fresno	2035	OBUS	DSL	20	1992.144412	1667.5831	1500.82475	0.005%
Fresno	2035	OBUS	GAS	25	2208.610212	768.01209	691.210878	0.006%
Fresno	2035	OBUS	DSL	25	2066.889037	1554.2995	1398.86952	0.005%
Fresno	2035	OBUS	GAS	30	2497.148374	619.4336	557.49024	0.007%
Fresno	2035	OBUS	DSL	30	2883.156009	1513.4747	1362.12724	0.008%
Fresno	2035	OBUS	GAS	35	3103.576479	527.84663	475.061971	0.008%
Fresno	2035	OBUS	DSL	35	4256.683632	1496.2431	1346.61875	0.011%
Fresno	2035	OBUS	GAS	40	3863.633016	475.23318	427.70986	0.010%
Fresno	2035	OBUS	DSL	40	4543.694778	1388.0184	1249.21658	0.012%
Fresno	2035	OBUS	GAS	45	3523.369062	452.05586	406.85027	0.009%
Fresno	2035	OBUS	DSL	45	5084.936748	1412.7021	1271.43191	0.013%
Fresno	2035	OBUS	GAS	50	3428.962485	454.3218	408.889619	0.009%
Fresno	2035	OBUS	DSL	50	5430.630913	1369.3928	1232.45348	0.014%
Fresno	2035	OBUS	GAS	55	4484.770489	482.41554	434.173989	0.012%
Fresno	2035	OBUS	DSL	55	7117.427162	1329.5933	1196.63399	0.019%
Fresno	2035	OBUS	GAS	60	5175.220475	541.20921	487.088287	0.014%
Fresno	2035	OBUS	DSL	60	4814.166097	1154.5349	1039.08143	0.013%
Fresno	2035	OBUS	GAS	65	808.6937362	641.49789	577.348105	0.002%
Fresno	2035	OBUS	DSL	65	1253.216836	1334.3475	1200.91276	0.003%
Fresno	2035	SBUS	GAS	5	77.84897258	2513.497	2262.14728	0.000%
Fresno	2035	SBUS	DSL	5	153.2615459	2617.434	2355.69059	0.000%
Fresno	2035	SBUS	GAS	10	272.85665	2036.1281	1832.51532	0.001%
Fresno	2035	SBUS	DSL	10	537.1738631	2162.205	1945.98453	0.001%
Fresno	2035	SBUS	GAS	15	545.7133238	1392.4296	1253.1866	0.001%
Fresno	2035	SBUS	DSL	15	1074.347726	1775.3578	1597.82198	0.003%
Fresno	2035	SBUS	GAS	20	740.7171077	1006.0685	905.461637	0.002%
Fresno	2035	SBUS	DSL	20	1458.252304	1400.5807	1260.52261	0.004%
Fresno	2035	SBUS	GAS	25	1169.271698	768.01209	691.210884	0.003%
Fresno	2035	SBUS	DSL	25	2301.949259	1306.7731	1176.09577	0.006%
Fresno	2035	SBUS	GAS	30	1402.818632	619.43357	557.490213	0.004%
Fresno	2035	SBUS	DSL	30	2761.733897	1226.6041	1103.94372	0.007%
Fresno	2035	SBUS	GAS	35	1439.816931	527.84649	475.061843	0.004%
Fresno	2035	SBUS	DSL	35	2834.572408	1160.0738	1044.06647	0.007%
Fresno	2035	SBUS	GAS	40	971.9525215	475.23313	427.709817	0.003%
Fresno	2035	SBUS	DSL	40	1913.486228	1107.1822	996.464003	0.005%
Fresno	2035	SBUS	GAS	45	466.3194211	452.0558	406.850224	0.001%
Fresno	2035	SBUS	DSL	45	918.0446319	1067.9293	961.136336	0.002%
Fresno	2035	SBUS	GAS	50	233.5469216	454.32174	408.889568	0.001%
Fresno	2035	SBUS	DSL	50	459.7846378	1042.315	938.083462	0.001%
Fresno	2035	SBUS	GAS	55	347.619697	482.4154	434.173862	0.001%
Fresno	2035	SBUS	DSL	55	684.3600513	1030.3393	927.305381	0.002%
Fresno	2035	SBUS	GAS	60	193.4666775	541.20909	487.088184	0.001%
Fresno	2035	SBUS	DSL	60	380.8785078	1032.0023	928.802094	0.001%
Fresno	2035	T6	GAS	5	973.5269487	2513.4972	2262.1475	0.003%
Fresno	2035	T6	DSL	5	5137.502657	2559.9333	2303.93998	0.014%
Fresno	2035	T6	GAS	10	4893.928522	2036.1282	1832.5154	0.013%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	T6	DSL	10	25572.55286	2114.705	1903.23447	0.068%
Fresno	2035	T6	GAS	15	6181.870759	1392.4296	1253.18662	0.016%
Fresno	2035	T6	DSL	15	34514.07045	1736.3561	1562.72049	0.091%
Fresno	2035	T6	GAS	20	6412.118155	1006.0686	905.461739	0.017%
Fresno	2035	T6	DSL	20	36603.42601	1369.8122	1232.83102	0.097%
Fresno	2035	T6	GAS	25	7144.581859	768.01214	691.210928	0.019%
Fresno	2035	T6	DSL	25	38121.01655	1278.0654	1150.2589	0.101%
Fresno	2035	T6	GAS	30	8077.967694	619.43366	557.49029	0.021%
Fresno	2035	T6	DSL	30	45837.43399	1199.6577	1079.69191	0.121%
Fresno	2035	T6	GAS	35	10039.68785	527.84662	475.06196	0.027%
Fresno	2035	T6	DSL	35	54048.37171	1134.589	1021.13006	0.143%
Fresno	2035	T6	GAS	40	12498.37693	475.23322	427.709895	0.033%
Fresno	2035	T6	DSL	40	67092.63964	1082.8593	974.573342	0.177%
Fresno	2035	T6	GAS	45	11397.66629	452.05587	406.850281	0.030%
Fresno	2035	T6	DSL	45	54939.97548	1044.4686	940.021765	0.145%
Fresno	2035	T6	GAS	50	11092.27173	454.32181	408.889633	0.029%
Fresno	2035	T6	DSL	50	61486.76705	1019.417	917.475324	0.162%
Fresno	2035	T6	GAS	55	14507.68041	482.41554	434.173988	0.038%
Fresno	2035	T6	DSL	55	90103.28526	1007.7045	906.93402	0.238%
Fresno	2035	T6	GAS	60	16741.19979	541.20927	487.088343	0.044%
Fresno	2035	T6	DSL	60	108274.1968	1009.3309	908.397853	0.286%
Fresno	2035	T6	GAS	65	2616.024468	641.49796	577.348162	0.007%
Fresno	2035	T6	DSL	65	17039.2801	1024.2965	921.866823	0.045%
Fresno	2035	T7	GAS	5	47.10131666	2513.4974	2262.14768	0.000%
Fresno	2035	T7	DSL	5	11173.31499	3956.4896	3560.84066	0.030%
Fresno	2035	T7	GAS	10	230.2084577	2036.1282	1832.51536	0.001%
Fresno	2035	T7	DSL	10	42682.57987	3268.3696	2941.53267	0.113%
Fresno	2035	T7	GAS	15	251.045954	1392.4295	1253.18658	0.001%
Fresno	2035	T7	DSL	15	52201.14437	2683.6148	2415.2533	0.138%
Fresno	2035	T7	GAS	20	429.0332322	1006.0686	905.461705	0.001%
Fresno	2035	T7	DSL	20	128970.4852	2117.0983	1905.38845	0.341%
Fresno	2035	T7	GAS	25	559.9157108	768.01216	691.210943	0.001%
Fresno	2035	T7	DSL	25	117904.473	1975.3064	1777.77576	0.311%
Fresno	2035	T7	GAS	30	1022.511277	619.43356	557.490202	0.003%
Fresno	2035	T7	DSL	30	199055.5773	1854.1237	1668.71137	0.526%
Fresno	2035	T7	GAS	35	1818.673148	527.84658	475.061926	0.005%
Fresno	2035	T7	DSL	35	358105.961	1753.5572	1578.20146	0.946%
Fresno	2035	T7	GAS	40	1585.380627	475.23322	427.709894	0.004%
Fresno	2035	T7	DSL	40	337948.0001	1673.6067	1506.246	0.893%
Fresno	2035	T7	GAS	45	1677.502011	452.05583	406.850251	0.004%
Fresno	2035	T7	DSL	45	473149.1008	1614.2722	1452.84502	1.250%
Fresno	2035	T7	GAS	50	1755.142041	454.32187	408.889685	0.005%
Fresno	2035	T7	DSL	50	492063.4364	1575.5539	1417.9985	1.300%
Fresno	2035	T7	GAS	55	2576.418962	482.41549	434.173944	0.007%
Fresno	2035	T7	DSL	55	600041.2421	1557.4516	1401.70645	1.585%
Fresno	2035	T7	GAS	60	635.8645954	541.2092	487.088277	0.002%
Fresno	2035	T7	DSL	60	182793.5252	1559.9654	1403.96887	0.483%
Fresno	2035	T7	GAS	65	340.8102276	641.49795	577.348155	0.001%
Fresno	2035	T7	DSL	65	100119.6844	1583.0953	1424.78576	0.264%
Fresno	2035	UBUS	GAS	5	191.1678639	2513.4971	2262.14738	0.001%
Fresno	2035	UBUS	DSL	5	471.246816	2299.614	2069.65261	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2035	UBUS	GAS	10	686.159464	2036.1282	1832.51542	0.002%
Fresno	2035	UBUS	DSL	10	1691.447896	2299.6141	2069.65266	0.004%
Fresno	2035	UBUS	GAS	15	1372.318955	1392.4296	1253.18661	0.004%
Fresno	2035	UBUS	DSL	15	3382.895703	2299.614	2069.65258	0.009%
Fresno	2035	UBUS	GAS	20	1810.982614	1006.0686	905.46172	0.005%
Fresno	2035	UBUS	DSL	20	4464.243052	2299.6139	2069.65251	0.012%
Fresno	2035	UBUS	GAS	25	2727.469681	768.01208	691.210871	0.007%
Fresno	2035	UBUS	DSL	25	6723.47014	2299.6141	2069.65273	0.018%
Fresno	2035	UBUS	GAS	30	3413.62903	619.43358	557.490218	0.009%
Fresno	2035	UBUS	DSL	30	8414.91731	2299.614	2069.65263	0.022%
Fresno	2035	UBUS	GAS	35	3345.34119	527.8465	475.061852	0.009%
Fresno	2035	UBUS	DSL	35	8246.58158	2299.6139	2069.65249	0.022%
Fresno	2035	UBUS	GAS	40	2411.685638	475.23317	427.70985	0.006%
Fresno	2035	UBUS	DSL	40	5945.03267	2299.614	2069.6526	0.016%
Fresno	2035	UBUS	GAS	45	1051.32669	452.05584	406.85026	0.003%
Fresno	2035	UBUS	DSL	45	2591.619522	2299.6141	2069.65268	0.007%
Fresno	2035	UBUS	GAS	50	534.151171	454.32179	408.889615	0.001%
Fresno	2035	UBUS	DSL	50	1316.733031	2299.6141	2069.65267	0.003%
Fresno	2035	UBUS	GAS	55	662.23948	482.4155	434.173949	0.002%
Fresno	2035	UBUS	DSL	55	1632.482756	2299.614	2069.6526	0.004%
Fresno	2035	UBUS	GAS	60	1083.927567	541.2092	487.088279	0.003%
Fresno	2035	UBUS	DSL	60	2671.983695	2299.614	2069.65263	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide *	0.290
Methane	0.000031
Nitrous oxide	0.000011

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	2,037,366,000	2,610	295,418	31.6	11.2	271,756
Commercial	2,212,049,466	7,503	320,747	34.3	12.2	295,057
Industrial	0		0	0.0	0.0	0
Total	4,249,415,466		616,165	65.9	23.4	566,813

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	107,722,800	138	630,178	59.2	1.2	573,160
Commercial	118,813,266	403	695,058	65.3	1.3	632,169
Industrial	0		0	0.0	0.0	0
Total	226,536,066		1,325,236	124.6	2.5	1,205,329

Notes and Sources:

*Used the 2020 emission factor.

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Emission factors for carbon dioxide from: PG&E 2013. Pacific Gas and Electric Company.; PG&E. 2013. Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

- Per capita emission rates are from the year 2010 based on actual usage from PG&E. The electricity and natural gas usage for this year are calculated as the per capita rate multiplied by the projected population.

Community Greenhouse Gas Inventory

Offroad Equipment

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,301,000	896	0.0329	0.0081	815
Fresno	780,600	537	0	0	489
Percent Fresno/Fresno County	60.0%				

Other Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,301,000	1,468	0.384	0.12457	1,375
Fresno	780,600	881	0	0	825
Percent Fresno/Fresno County	60.0%				

Total Fresno 1,314

Notes:

Emissions for Fresno County are from OFFROAD2007 for the year assessed; emissions from Fresno are apportioned based on population.

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

2020 Emissions (MTCO ₂ e per person)*	0.89
--	------

Fresno

Population	780,600
Emissions (MTCO ₂ e per person)	694,734
(estimated by using 2020 California per person emissions)	

Sources/Notes:

* 2020 California per capita emissions rate.

Community Greenhouse Gas Inventory

Summary

Year: 2035

Prepared by FirstCarbon Solutions

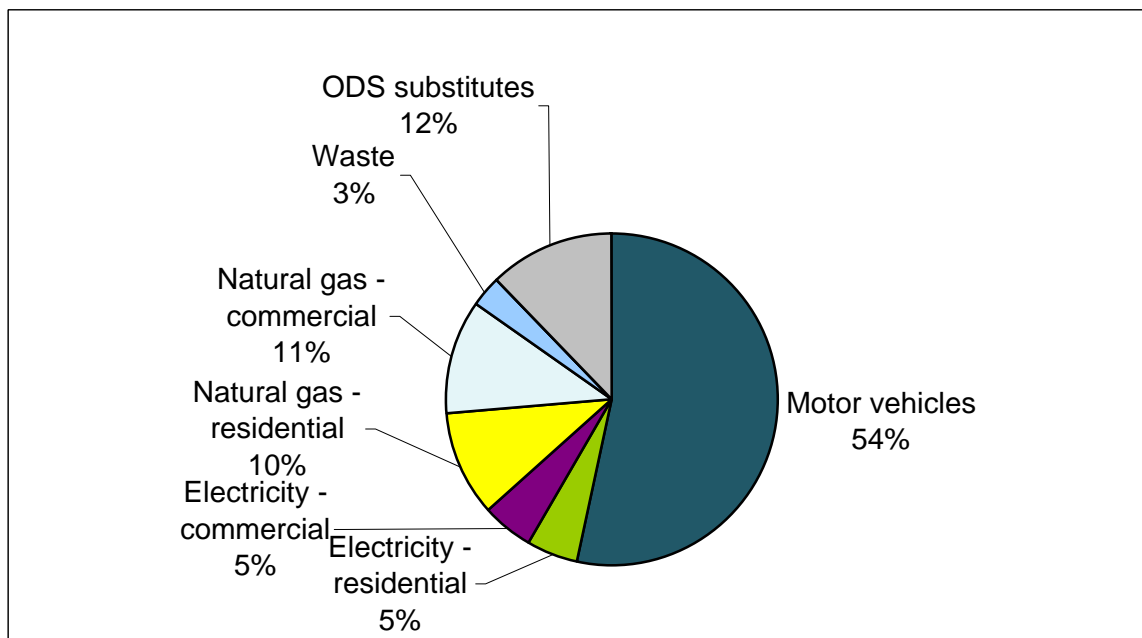
	Data	Source
City Information		
Population	780,600	Fresno COG
Employment	294,822	

County Information		
Population	1,301,000	Fresno COG

-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050. Produced under contract by: The Planning Center|DC&E. March 2012.

-Employment: Took the 2010 population (545,000) and 2010 employment (183,825) and cross multiplied with the 2035 population (780,600) and the 2035 employment number (X).

Emissions (MTCO₂e/year)	Without Regulation	With Pavley I and LCFS	Without RPS	
Motor vehicles	3,036,848	2,205,409	3,036,848	
Electricity - residential	271,756	271,756	414,999	used 2010 factors
Electricity - commercial	295,057	295,057	450,581	used 2010 factors
Natural gas - residential	573,160	573,160	573,160	
Natural gas - commercial	632,169	632,169	632,169	
Waste	177,508	177,508	177,508	
Offroad equipment	1,314	1,314	1,314	
ODS substitutes	694,734	694,734	694,734	
<u>Total</u>	<u>5,682,546</u>	<u>4,851,107</u>	<u>5,981,314</u>	



Community Greenhouse Gas Inventory

Waste

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Emissions

Emissions (MTCO ₂ e)*	177,508	
Emissions (MTCO ₂ e/person)	0.2274	2010 waste emissions per person

Notes:

*Emissions were calculated by multiplying the 2010 per capita rate by the population for this year.

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **14,989,208** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 5,471,060,920 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,044	0	1,044	5
5 - 10 MPH	867	1,014	0	1,881	5
10 - 15 MPH	169,023	218,185	464,023	851,231	10
15 - 20 MPH	5,711	8,451	8,927	23,089	15
20 - 25 MPH	24,991	41,774	71,218	137,984	20
25 - 30 MPH	102,076	135,165	293,694	530,936	25
30 - 35 MPH	113,130	179,032	223,639	515,800	30
35 - 40 MPH	666,413	863,471	1,739,931	3,269,815	35
40 - 45 MPH	298,021	363,660	798,881	1,460,562	40
45 - 50 MPH	253,522	334,066	983,905	1,571,493	45
50 - 55 MPH	137,117	193,692	466,238	797,047	50
55 - 60 MPH	608,586	723,611	1,711,520	3,043,717	55
60 - 65 MPH	583,433	724,771	1,476,213	2,784,416	60
65 - 70 MPH	33	43	116	191	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,962,924	3,787,978	8,238,306	14,989,208	

Source:
 Fehr and Peers. 2013. 2035 VMT was found by using multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 25 years of VMT growth between 2010 and 2035 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $(((2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years}) = .0248)$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2925	851231	23089	137984	530936	515800	3269815	1460562	1571493	797047	3043717	2784416	191	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.91%	0.12%	0.6% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.52%	0.01%	42.4% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.24%	0.01%	44.6% LDA, MCY
LHD1	2.67%	1.63%	10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.43%	2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.68%	0.00%	0.1% LDA, MCY
MDV	16.67%	0.01%	
MH	0.15%	0.03%	
OBUS	0.09%	0.11%	
SBUS	0.02%	0.04%	
T6	0.30%	1.69%	
T7	0.03%	8.18%	
UBUS	0.05%	0.13%	
Total			100.0%

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1132	834	647	514	428	368	328	303	292	292	303	326	364	390	0
LDT1		1315	969	751	598	497	428	382	353	340	339	352	379	423	453	0
LDT2		1538	1134	878	699	582	500	446	412	397	397	412	443	494	530	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		266	242	205	179	161	149	142	139	142	149	162	183	215	262	0
MDV		1970	1452	1125	895	745	641	572	528	509	508	527	567	633	679	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		504	455	382	332	300	281	274	276	289	314	354	415	504	635	0
LDT1		505	456	382	332	300	281	273	276	289	314	354	415	505	637	0
LDT2		503	454	381	332	300	282	274	277	290	314	354	414	502	632	0
LHD1		519	519	519	519	519	519	519	519	519	519	519	0	0	0	0
LHD2		519	519	519	519	519	519	519	519	519	519	519	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		504	455	382	332	300	281	273	276	289	314	354	415	504	635	0
MH		2409	2188	1796	1474	1322	1241	1174	1120	1081	1055	1042	1044	1060	0	0
OBUS		3001	2416	1966	1668	1554	1513	1496	1388	1413	1369	1330	1155	1334	0	0
SBUS		2617	2162	1775	1401	1307	1227	1160	1107	1068	1042	1030	1032	0	0	0
T6		2560	2115	1736	1370	1278	1200	1135	1083	1044	1019	1008	1009	1024	0	0
T7		3956	3268	2684	2117	1975	1854	1754	1674	1614	1576	1557	1560	1583	0	0
UBUS		2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1284	373772	10138	60588	233131	226486	1435760	641326	690035	349980	1336482	1222624	84	0	0
LDT1		191	55478	1505	8993	34603	33617	213105	95190	102420	51946	198370	181470	12	0	0
LDT2		475	138240	3750	22409	86224	83766	531018	237195	255210	129440	494299	452189	31	0	0
LHD1		78	22763	617	3690	14198	13793	87439	39057	42024	21314	81393	74459	5	0	0
LHD2		8	2273	62	368	1418	1377	8732	3900	4197	2129	8128	7436	1	0	0
MCY		20	5820	158	943	3630	3526	22355	9985	10744	5449	20809	19036	1	0	0
MDV		488	141928	3850	23006	88524	86001	545186	243524	262020	132894	507488	464254	32	0	0
MH		4	1293	35	210	807	784	4968	2219	2387	1211	4624	4230	0	0	0
OBUS		3	782	21	127	488	474	3006	1343	1445	733	2798	2560	0	0	0
SBUS		1	177	5	29	110	107	679	303	326	166	632	578	0	0	0
T6		9	2531	69	410	1579	9723	4343	4673	2370	9051	8280	1	0	0	0
T7		1	291	8	47	181	176	1117	499	537	272	1040	951	0	0	0
UBUS		1	434	12	70	271	263	1666	744	801	406	1551	1419	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		3	997	27	162	622	604	3831	1711	1841	934	3566	3263	0	0	0
LDT1		0	74	2	12	46	45	283	126	136	69	263	241	0	0	0
LDT2		0	62	2	10	39	38	239	107	115	58	223	204	0	0	0
LHD1		48	13911	377	2255	8677	8429	53436	23869	25682	13026	49741	45504	3	0	0
LHD2		13	3667	99	594	2287	2222	14087	6292	6770	3434	13113	11996	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	111	3	18	69	67	425	190	204	104	396	362	0	0	0
MH		1	280	8	45	174	169	1074	480	516	262	1000	915	0	0	0
OBUS		3	951	26	154	593	577	3655	1632	1756	891	3402	3112	0	0	0
SBUS		1	348	9	56	217	211	1337	597	642	326	1244	1138	0	0	0
T6		49	14362	390	2328	8958	8703	55170	24643	26515	13448	51355	46980	3	0	0
T7		239	69617	1888	11285	43422	42184	267417	119450	128522	65185	248926	227720	16	0	0
UBUS		4	1069	29	173	667	648	4107	1835	1974	1001	3823	3497	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		584	125,207	2,632	12,514	40,093	33,484	189,354	78,142	80,989	41,049	162,603	159,987	12	0	0	926,067
LDT1		101	21,588	454	2,157	6,911	5,772	32,644	13,473	13,964	7,077	28,034	27,583	2	0	0	159,661
LDT2		293	62,914	1,322	6,287	20,142	16,822	95,135	39,264	40,694	20,625	81,699	80,386	6	0	0	465,297
LHD1		79	18,609	345	1,490	4,378	3,430	18,531	7,452	7,627	3,888	15,765	0	0	0	0	81,517

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	8	1,858	34	149	437	343	1,851	744	762	388	1,574	0	0	0	0	8,141
MCY	2	566	13	68	234	210	1,272	559	611	326	1,356	1,400	0	0	0	6,615
MDV	386	82,755	1,739	8,270	26,493	22,126	125,134	51,647	53,527	27,129	107,463	105,736	8	0	0	612,028
MH	4	1,057	20	85	249	195	1,053	423	433	221	896	919	0	0	0	5,550
OBUS	3	640	12	51	150	118	637	256	262	134	542	556	0	0	0	3,358
SBUS	1	145	3	12	34	27	144	58	59	30	122	126	0	0	0	759
T6	9	2,069	38	166	487	381	2,061	829	848	432	1,753	1,799	0	0	0	10,864
T7	1	238	4	19	56	44	237	95	97	50	201	207	0	0	0	1,248
UBUS	2	355	7	28	83	65	353	142	145	74	300	308	0	0	0	1,862
Total	1,471	318,002	6,622	31,296	99,748	83,017	468,405	193,086	200,021	101,423	402,309	379,007	29	0	0	2,284,436
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	182	4	22	75	68	421	190	214	118	507	543	0	0	0	2,344
LDT1	0	13	0	2	6	5	31	14	16	9	37	40	0	0	0	173
LDT2	0	11	0	1	5	4	26	12	13	7	32	34	0	0	0	146
LHD1	10	2,899	79	470	1,808	1,757	11,136	4,974	5,352	2,714	10,366	0	0	0	0	41,555
LHD2	3	764	21	124	477	463	2,936	1,311	1,411	716	2,733	0	0	0	0	10,956
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	20	0	2	8	8	47	21	24	13	56	60	0	0	0	260
MH	1	246	5	27	93	84	506	216	224	111	419	384	0	0	0	2,314
OBUS	4	923	20	103	370	350	2,196	910	996	490	1,816	1,443	0	0	0	9,618
SBUS	1	302	7	32	114	104	623	265	275	136	515	472	0	0	0	2,845
T6	51	12,194	272	1,280	4,597	4,192	25,132	10,714	11,119	5,504	20,778	19,039	1	0	0	114,823
T7	380	91,355	2,035	9,592	34,437	31,403	188,276	80,265	83,299	41,235	155,658	142,627	10	0	0	860,192
UBUS	3	987	27	160	616	598	3,792	1,694	1,822	924	3,530	3,229	0	0	0	17,380
Total	454	109,898	2,470	11,815	42,605	39,037	235,122	100,586	104,766	51,978	196,447	167,870	11	0	0	1,063,059

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	3,347,495	3,036,848	3,036,848

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **14,989,208** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 5,471,060,920 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.48% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,034	0	1,034	5
5 - 10 MPH	859	1,004	0	1,863	5
10 - 15 MPH	167,394	216,081	459,549	843,024	10
15 - 20 MPH	5,656	8,370	8,841	22,866	15
20 - 25 MPH	24,751	41,371	70,532	136,653	20
25 - 30 MPH	101,092	133,862	290,863	525,817	25
30 - 35 MPH	112,039	177,305	221,483	510,827	30
35 - 40 MPH	659,988	855,145	1,723,155	3,238,288	35
40 - 45 MPH	295,148	360,153	791,178	1,446,479	40
45 - 50 MPH	251,077	330,845	974,418	1,556,341	45
50 - 55 MPH	135,795	191,825	461,743	789,362	50
55 - 60 MPH	602,719	716,634	1,695,018	3,014,370	55
60 - 65 MPH	577,808	717,782	1,461,979	2,757,569	60
65 - 70 MPH	32	42	115	190	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	2,934,356	3,751,455	8,158,873	14,844,684	

Source:
 Fehr and Peers. 2013. 2035 VMT was found by using multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 25 years of VMT growth between 2010 and 2035 and adding that to the 2010 VMT.

Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $[(2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years} = .0248]$.

2010 VMT found by backcasting the

2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	2897	843024	22866	136653	525817	510827	3238288	1446479	1556341	789362	3014370	2757569	190	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.91%	0.12%	0.6% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.52%	0.01%	42.4% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.24%	0.01%	44.6% LDA, MCY
LHD1	2.67%	1.63%	10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.43%	2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.68%	0.00%	0.1% LDA, MCY
MDV	16.67%	0.01%	
MH	0.15%	0.03%	
OBUS	0.09%	0.11%	
SBUS	0.02%	0.04%	
T6	0.30%	1.69%	
T7	0.03%	8.18%	
UBUS	0.05%	0.13%	
Total			100.0%

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		673	496	385	306	255	219	195	180	174	174	180	194	216	232	0
LDT1		801	590	457	364	303	260	232	215	207	207	214	231	257	276	0
LDT2		1045	770	597	475	395	340	303	280	270	270	280	301	336	360	0
LHD1		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
LHD2		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
MCY		240	218	185	161	144	134	128	125	128	134	146	165	193	236	0
MDV		1370	1010	783	623	518	446	398	367	354	354	367	395	440	472	0
MH		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
OBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
SBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
T6		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
T7		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		304	274	230	200	181	170	165	167	175	190	214	250	304	383	0
LDT1		302	272	228	199	179	168	163	165	173	188	212	248	302	381	0
LDT2		343	310	260	227	205	193	188	189	198	215	242	283	343	431	0
LHD1		467	467	467	467	467	467	467	467	467	467	467	0	0	0	0
LHD2		467	467	467	467	467	467	467	467	467	467	467	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		348	315	264	230	207	194	189	191	200	217	245	287	348	439	0
MH		2169	1969	1617	1327	1190	1117	1056	1008	972	949	938	940	954	0	0
OBUS		2701	2175	1770	1501	1399	1362	1347	1249	1271	1232	1197	1039	1201	0	0
SBUS		2356	1946	1598	1261	1176	1104	1044	996	961	938	927	929	0	0	0
T6		2304	1903	1563	1233	1150	1080	1021	975	940	917	907	908	922	0	0
T7		3561	2942	2415	1905	1778	1669	1578	1506	1453	1418	1402	1404	1425	0	0
UBUS		2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1272	370168	10040	60004	230884	224302	1421917	635142	683382	346605	1323596	1210835	83	0	0
LDT1		189	54943	1490	8906	34269	33292	211050	94272	101432	51445	196457	179720	12	0	0
LDT2		470	136907	3713	22193	85393	82958	525898	234908	252750	128192	489533	447829	31	0	0
LHD1		77	22544	611	3654	14061	13660	86596	38681	41619	21109	80608	73741	5	0	0
LHD2		8	2251	61	365	1404	1364	8648	3863	4156	2108	8050	7364	1	0	0
MCY		20	5763	156	934	3595	3492	22139	9889	10640	5397	20608	18853	1	0	0
MDV		483	140560	3813	22785	87671	85172	539929	241176	259493	131613	502595	459777	32	0	0
MH		4	1281	35	208	799	776	4920	2198	2364	1199	4580	4189	0	0	0
OBUS		3	775	21	126	483	470	2977	1330	1431	726	2771	2535	0	0	0
SBUS		1	175	5	28	109	106	672	300	323	164	626	573	0	0	0
T6		9	2507	68	406	1564	1519	9629	4301	4628	2347	8964	8200	1	0	0
T7		1	288	8	47	180	174	1106	494	532	270	1029	942	0	0	0
UBUS		1	430	12	70	268	260	1650	737	793	402	1536	1405	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		3	988	27	160	616	599	3794	1695	1824	925	3532	3231	0	0	0
LDT1		0	73	2	12	45	44	280	125	135	68	261	238	0	0	0
LDT2		0	62	2	10	38	37	237	106	114	58	221	202	0	0	0
LHD1		47	13777	374	2233	8593	8348	52921	23639	25434	12900	49262	45065	3	0	0
LHD2		12	3632	99	589	2265	2201	13951	6232	6705	3401	12987	11880	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	110	3	18	68	66	421	188	202	103	392	358	0	0	0
MH		1	277	8	45	173	168	1064	475	511	259	991	906	0	0	0
OBUS		3	942	26	153	588	571	3619	1617	1740	882	3369	3082	0	0	0
SBUS		1	345	9	56	215	209	1324	591	636	323	1232	1127	0	0	0
T6		49	14224	386	2306	8872	8619	54638	24406	26259	13319	50860	46527	3	0	0
T7		237	68946	1870	11176	43003	41777	264839	118298	127283	64557	246526	225524	16	0	0
UBUS		4	1059	29	172	660	642	4067	1817	1955	991	3786	3464	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		344	73,750	1,550	7,371	23,616	19,722	111,533	46,027	47,704	24,178	95,776	94,236	7	0	0	545,471
LDT1		61	13,019	274	1,301	4,168	3,481	19,686	8,125	8,421	4,268	16,906	16,634	1	0	0	96,282
LDT2		197	42,332	890	4,231	13,553	11,319	64,012	26,419	27,381	13,878	54,972	54,088	4	0	0	313,078
LHD1		70	16,587	308	1,328	3,902	3,058	16,517	6,642	6,798	3,465	14,052	0	0	0	0	72,658

Community Greenhouse Gas Inventory

Motor Vehicle Emissions

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	7	1,656	31	133	390	305	1,649	663	679	346	1,403	0	0	0	0	7,256	
MCY	2	505	12	60	209	187	1,133	498	545	291	1,208	1,248	0	0	0	5,896	
MDV	266	57,011	1,198	5,697	18,251	15,243	86,205	35,580	36,875	18,689	74,031	72,842	6	0	0	421,628	
MH	4	942	17	75	222	174	938	377	386	197	798	819	0	0	0	4,947	
OBUS	2	570	11	46	134	105	568	228	234	119	483	496	0	0	0	2,993	
SBUS	1	129	2	10	30	24	128	52	53	27	109	112	0	0	0	676	
T6	8	1,844	34	148	434	340	1,837	739	756	385	1,563	1,604	0	0	0	9,683	
T7	1	212	4	17	50	39	211	85	87	44	179	184	0	0	0	1,112	
UBUS	1	316	6	25	74	58	315	127	130	66	268	275	0	0	0	1,659	
Total	964	208,872	4,336	20,443	65,031	54,055	304,733	125,563	130,049	65,954	261,749	242,537	19	0	0	1,484,303	
DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	0	109	2	13	45	41	252	113	128	70	303	324	0	0	0	0	1,401
LDT1	0	8	0	1	3	3	18	8	9	5	22	24	0	0	0	0	102
LDT2	0	8	0	1	3	3	18	8	9	5	21	23	0	0	0	0	99
LHD1	9	2,584	70	419	1,612	1,566	9,926	4,434	4,770	2,419	9,239	0	0	0	0	0	37,039
LHD2	2	681	18	110	425	413	2,617	1,169	1,258	638	2,436	0	0	0	0	0	9,765
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	14	0	2	6	5	32	14	16	9	39	41	0	0	0	0	178
MH	1	219	5	24	83	75	451	192	200	99	373	342	0	0	0	0	2,063
OBUS	4	823	18	92	330	312	1,957	811	888	437	1,619	1,286	0	0	0	0	8,572
SBUS	1	269	6	28	102	93	555	237	246	122	459	420	0	0	0	0	2,536
T6	45	10,869	242	1,141	4,097	3,736	22,401	9,550	9,911	4,906	18,520	16,970	1	0	0	0	102,344
T7	339	81,426	1,813	8,550	30,695	27,990	167,815	71,542	74,247	36,754	138,741	127,126	9	0	0	0	766,708
UBUS	3	880	24	143	549	533	3,380	1,510	1,624	824	3,146	2,878	0	0	0	0	15,491
Total	404	97,890	2,200	10,524	37,948	34,770	209,421	89,588	93,305	46,288	174,919	149,435	10	0	0	0	946,703

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	2,431,006	2,205,409	2,205,409

EMFAC 2011
 2035 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter:
 region - County: Fresno, year - 2035, season - annual average,
 vehicle category - EMFAC2007, model year - aggregated,
 speed - all speeds, fuel - all) Website:
<http://www.arb.ca.gov/emfac/>

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	LDA	GAS	5	690.6105816	1132.0738	673.304157	0.002%
Fresno	2035	LDA	DSL	5	1.8428816	503.98095	303.820128	0.000%
Fresno	2035	LDA	GAS	10	35638.70556	834.33041	496.221479	0.094%
Fresno	2035	LDA	DSL	10	95.10122957	455.13953	274.429687	0.000%
Fresno	2035	LDA	GAS	15	21241.01664	646.51746	384.518119	0.056%
Fresno	2035	LDA	DSL	15	56.68125803	381.69808	230.236122	0.000%
Fresno	2035	LDA	GAS	20	808500.6477	514.41562	305.950589	2.136%
Fresno	2035	LDA	DSL	20	2157.468978	332.21956	200.462311	0.006%
Fresno	2035	LDA	GAS	25	197184.9121	428.33796	254.755245	0.521%
Fresno	2035	LDA	DSL	25	526.184285	300.07648	181.120132	0.001%
Fresno	2035	LDA	GAS	30	537842.6996	368.21896	218.999388	1.421%
Fresno	2035	LDA	DSL	30	1435.223272	281.26432	169.799873	0.004%
Fresno	2035	LDA	GAS	35	1366088.421	328.47892	195.363966	3.608%
Fresno	2035	LDA	DSL	35	3645.382029	273.56113	165.164459	0.010%
Fresno	2035	LDA	GAS	40	1943582.491	303.47195	180.491197	5.134%
Fresno	2035	LDA	DSL	40	5186.414182	276.08485	166.683111	0.014%
Fresno	2035	LDA	GAS	45	1929011.91	292.32892	173.863779	5.095%
Fresno	2035	LDA	DSL	45	5147.532356	289.12263	174.528631	0.014%
Fresno	2035	LDA	GAS	50	2232462.568	292.1258	173.742948	5.897%
Fresno	2035	LDA	DSL	50	5957.284783	314.18613	189.610649	0.016%
Fresno	2035	LDA	GAS	55	1665080.069	303.02659	180.226197	4.398%
Fresno	2035	LDA	DSL	55	4443.235664	354.30714	213.753563	0.012%
Fresno	2035	LDA	GAS	60	1897400.144	325.91705	193.840412	5.012%
Fresno	2035	LDA	DSL	60	5063.177272	414.65641	250.068876	0.013%
Fresno	2035	LDA	GAS	65	2035032.499	363.783	216.361367	5.375%
Fresno	2035	LDA	DSL	65	5430.446516	503.66351	303.629111	0.014%
Fresno	2035	LDA	GAS	70	1953744.04	390.12334	232.027326	5.161%
Fresno	2035	LDA	DSL	70	5213.529627	634.9815	382.650018	0.014%
Fresno	2035	LDT1	GAS	5	102.505054	1314.7679	800.56989	0.000%
Fresno	2035	LDT1	DSL	5	0.136006444	504.82718	301.829718	0.000%
Fresno	2035	LDT1	GAS	10	5289.735537	969.2076	590.161462	0.014%
Fresno	2035	LDT1	DSL	10	7.018562029	455.72464	272.471938	0.000%
Fresno	2035	LDT1	GAS	15	3152.734078	750.8486	457.196034	0.008%
Fresno	2035	LDT1	DSL	15	4.183131754	381.89043	228.327408	0.000%
Fresno	2035	LDT1	GAS	20	120003.0938	597.5229	363.837256	0.317%
Fresno	2035	LDT1	DSL	20	159.223291	332.14738	198.586677	0.000%
Fresno	2035	LDT1	GAS	25	29267.50821	497.46337	302.908369	0.077%
Fresno	2035	LDT1	DSL	25	38.8329089	299.83242	179.265976	0.000%
Fresno	2035	LDT1	GAS	30	79830.22013	427.66259	260.40672	0.211%
Fresno	2035	LDT1	DSL	30	105.9208623	280.91966	167.958278	0.000%
Fresno	2035	LDT1	GAS	35	202764.0257	381.5275	232.315209	0.536%
Fresno	2035	LDT1	DSL	35	269.032684	273.17532	163.328035	0.001%
Fresno	2035	LDT1	GAS	40	288479.5847	352.52979	214.659347	0.762%
Fresno	2035	LDT1	DSL	40	382.762388	275.71251	164.844988	0.001%
Fresno	2035	LDT1	GAS	45	286316.8661	339.57319	206.769651	0.756%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	LDT1	DSL	45	379.892857	288.82002	172.681802	0.001%
Fresno	2035	LDT1	GAS	50	331357.0651	339.33117	206.622144	0.875%
Fresno	2035	LDT1	DSL	50	439.65337	314.01753	187.74707	0.001%
Fresno	2035	LDT1	GAS	55	247142.3572	351.98542	214.327262	0.653%
Fresno	2035	LDT1	DSL	55	327.915092	354.35305	211.86316	0.001%
Fresno	2035	LDT1	GAS	60	281624.8653	378.57999	230.521082	0.744%
Fresno	2035	LDT1	DSL	60	373.667387	415.02501	248.13815	0.001%
Fresno	2035	LDT1	GAS	65	302053.17	422.57263	257.308816	0.798%
Fresno	2035	LDT1	DSL	65	400.772191	504.50805	301.638916	0.001%
Fresno	2035	LDT1	GAS	70	289987.7843	453.15713	275.931745	0.766%
Fresno	2035	LDT1	DSL	70	384.763509	636.52822	380.57209	0.001%
Fresno	2035	LDT2	GAS	5	255.4230734	1537.7072	1044.72708	0.001%
Fresno	2035	LDT2	DSL	5	0.115068342	502.58125	342.876199	0.000%
Fresno	2035	LDT2	GAS	10	13181.01512	1133.5198	770.121871	0.035%
Fresno	2035	LDT2	DSL	10	5.938059729	454.17178	309.953162	0.000%
Fresno	2035	LDT2	GAS	15	7856.01344	878.16719	596.631776	0.021%
Fresno	2035	LDT2	DSL	15	3.539141521	381.37983	260.447709	0.000%
Fresno	2035	LDT2	GAS	20	299024.8642	698.82978	474.789734	0.790%
Fresno	2035	LDT2	DSL	20	134.7109823	332.33894	227.095244	0.000%
Fresno	2035	LDT2	GAS	25	72929.06082	581.81597	395.289098	0.193%
Fresno	2035	LDT2	DSL	25	32.8546126	300.48012	205.428217	0.000%
Fresno	2035	LDT2	GAS	30	198921.7045	500.17663	339.823036	0.525%
Fresno	2035	LDT2	DSL	30	89.6144222	281.83435	192.747317	0.000%
Fresno	2035	LDT2	GAS	35	505249.3773	446.2161	303.162106	1.335%
Fresno	2035	LDT2	DSL	35	227.615306	274.19932	187.554772	0.001%
Fresno	2035	LDT2	GAS	40	718836.1816	412.29527	280.11649	1.899%
Fresno	2035	LDT2	DSL	40	323.836374	276.70072	189.255964	0.001%
Fresno	2035	LDT2	GAS	45	713447.1657	397.14374	269.822318	1.885%
Fresno	2035	LDT2	DSL	45	321.408637	289.62318	198.044466	0.001%
Fresno	2035	LDT2	GAS	50	825678.7517	396.86153	269.630532	2.181%
Fresno	2035	LDT2	DSL	50	371.969048	314.46502	214.939279	0.001%
Fresno	2035	LDT2	GAS	55	615831.7597	411.66227	279.686188	1.627%
Fresno	2035	LDT2	DSL	55	277.432793	354.23118	241.984048	0.001%
Fresno	2035	LDT2	GAS	60	701755.5784	442.76497	300.817625	1.854%
Fresno	2035	LDT2	DSL	60	316.141556	414.0467	282.664287	0.001%
Fresno	2035	LDT2	GAS	65	752659.027	494.21508	335.773267	1.988%
Fresno	2035	LDT2	DSL	65	339.0736	502.26661	342.662214	0.001%
Fresno	2035	LDT2	GAS	70	722594.3024	529.98661	360.076591	1.909%
Fresno	2035	LDT2	DSL	70	325.529436	632.42323	431.181097	0.001%
Fresno	2035	LHD1	GAS	5	28730.83376	2513.4971	2262.14741	0.076%
Fresno	2035	LHD1	DSL	5	10879.47172	519.044	467.1396	0.029%
Fresno	2035	LHD1	GAS	10	74917.97247	2036.1283	1832.51546	0.198%
Fresno	2035	LHD1	DSL	10	36179.20697	519.04392	467.139527	0.096%
Fresno	2035	LHD1	GAS	15	170598.308	1392.4297	1253.18676	0.451%
Fresno	2035	LHD1	DSL	15	78353.78669	519.04397	467.139573	0.207%
Fresno	2035	LHD1	GAS	20	197125.0326	1006.0685	905.461657	0.521%
Fresno	2035	LHD1	DSL	20	85901.05561	519.04403	467.139624	0.227%
Fresno	2035	LHD1	GAS	25	151847.0565	768.01202	691.210821	0.401%
Fresno	2035	LHD1	DSL	25	91937.0507	519.04403	467.139624	0.243%
Fresno	2035	LHD1	GAS	30	134282.6251	619.43358	557.490222	0.355%
Fresno	2035	LHD1	DSL	30	77606.52044	519.04398	467.139584	0.205%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of
								Total VMT
Fresno	2035	LHD1	GAS	35	50176.54222	527.84646	475.061813	0.133%
Fresno	2035	LHD1	DSL	35	40955.97348	519.04399	467.13959	0.108%
Fresno	2035	LHD1	GAS	40	14810.97147	475.23314	427.70983	0.039%
Fresno	2035	LHD1	DSL	40	22483.49154	519.04403	467.139628	0.059%
Fresno	2035	LHD1	GAS	45	18233.60859	452.05583	406.850246	0.048%
Fresno	2035	LHD1	DSL	45	24267.07928	519.04407	467.139664	0.064%
Fresno	2035	LHD1	GAS	50	134634.4239	454.32182	408.889636	0.356%
Fresno	2035	LHD1	DSL	50	93702.88848	519.04402	467.139615	0.248%
Fresno	2035	LHD1	GAS	55	37030.82405	482.41548	434.17393	0.098%
Fresno	2035	LHD1	DSL	55	56428.72821	519.04399	467.139593	0.149%
Fresno	2035	LHD2	GAS	5	2869.22626	2513.4973	2262.14755	0.008%
Fresno	2035	LHD2	DSL	5	2868.083817	519.10791	467.197122	0.008%
Fresno	2035	LHD2	GAS	10	7481.739717	2036.1282	1832.51541	0.020%
Fresno	2035	LHD2	DSL	10	9537.686436	519.10792	467.197126	0.025%
Fresno	2035	LHD2	GAS	15	17036.93043	1392.4296	1253.1866	0.045%
Fresno	2035	LHD2	DSL	15	20655.89581	519.10791	467.197119	0.055%
Fresno	2035	LHD2	GAS	20	19686.03938	1006.0685	905.461663	0.052%
Fresno	2035	LHD2	DSL	20	22645.53381	519.10792	467.197126	0.060%
Fresno	2035	LHD2	GAS	25	15164.32093	768.01204	691.210836	0.040%
Fresno	2035	LHD2	DSL	25	24236.76085	519.10797	467.197177	0.064%
Fresno	2035	LHD2	GAS	30	13410.23552	619.43357	557.490209	0.035%
Fresno	2035	LHD2	DSL	30	20458.89806	519.10794	467.197147	0.054%
Fresno	2035	LHD2	GAS	35	5010.918084	527.84649	475.061841	0.013%
Fresno	2035	LHD2	DSL	35	10796.95529	519.10789	467.1971	0.029%
Fresno	2035	LHD2	GAS	40	1479.108812	475.23314	427.709828	0.004%
Fresno	2035	LHD2	DSL	40	5927.175615	519.10788	467.197088	0.016%
Fresno	2035	LHD2	GAS	45	1820.912953	452.05583	406.850243	0.005%
Fresno	2035	LHD2	DSL	45	6397.37166	519.1079	467.197108	0.017%
Fresno	2035	LHD2	GAS	50	13445.36839	454.32177	408.889595	0.036%
Fresno	2035	LHD2	DSL	50	24702.27926	519.10786	467.197078	0.065%
Fresno	2035	LHD2	GAS	55	3698.110984	482.41546	434.173911	0.010%
Fresno	2035	LHD2	DSL	55	14875.93575	519.1079	467.197112	0.039%
Fresno	2035	MCY	GAS	5	10.7527472	266.3941	239.754687	0.000%
Fresno	2035	MCY	GAS	10	554.8915779	242.30076	218.070684	0.001%
Fresno	2035	MCY	GAS	15	330.7208003	205.03074	184.52767	0.001%
Fresno	2035	MCY	GAS	20	12588.28568	178.73877	160.864893	0.033%
Fresno	2035	MCY	GAS	25	3070.152177	160.51344	144.462093	0.008%
Fresno	2035	MCY	GAS	30	8374.163837	148.52267	133.670406	0.022%
Fresno	2035	MCY	GAS	35	21269.87913	141.67529	127.507762	0.056%
Fresno	2035	MCY	GAS	40	30261.41652	139.43553	125.491979	0.080%
Fresno	2035	MCY	GAS	45	30034.5498	141.74257	127.568309	0.079%
Fresno	2035	MCY	GAS	50	34759.24992	149.01587	134.114283	0.092%
Fresno	2035	MCY	GAS	55	25925.15673	162.25023	146.025203	0.068%
Fresno	2035	MCY	GAS	60	29542.35713	183.22816	164.905344	0.078%
Fresno	2035	MCY	GAS	65	31685.28107	214.9121	193.42089	0.084%
Fresno	2035	MCY	GAS	70	30419.62513	262.13732	235.92359	0.080%
Fresno	2035	MDV	GAS	5	262.238077	1969.99	1370.33855	0.001%
Fresno	2035	MDV	DSL	5	0.204451984	504.23305	348.357588	0.000%
Fresno	2035	MDV	GAS	10	13532.69976	1452.2532	1010.20434	0.036%
Fresno	2035	MDV	DSL	10	10.55066914	455.31385	314.587226	0.000%
Fresno	2035	MDV	GAS	15	8065.620673	1125.0378	782.583902	0.021%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	MDV	DSL	15	6.28830171	381.75539	263.807654	0.000%
Fresno	2035	MDV	GAS	20	307003.1737	895.31583	622.79059	0.811%
Fresno	2035	MDV	DSL	20	239.3527774	332.19804	229.596761	0.001%
Fresno	2035	MDV	GAS	25	74874.88875	745.37717	518.48947	0.198%
Fresno	2035	MDV	DSL	25	58.3756578	300.00377	207.37211	0.000%
Fresno	2035	MDV	GAS	30	204229.1639	640.79385	445.741211	0.539%
Fresno	2035	MDV	DSL	30	159.2257691	281.16164	194.364833	0.000%
Fresno	2035	MDV	GAS	35	518729.9462	571.66991	397.658678	1.370%
Fresno	2035	MDV	DSL	35	404.4240135	273.44619	189.03863	0.001%
Fresno	2035	MDV	GAS	40	738015.5598	528.22783	367.441432	1.949%
Fresno	2035	MDV	DSL	40	575.3884012	275.97394	190.783609	0.002%
Fresno	2035	MDV	GAS	45	732482.7386	508.81188	353.935103	1.935%
Fresno	2035	MDV	DSL	45	571.0747511	289.03251	199.798324	0.002%
Fresno	2035	MDV	GAS	50	847708.7407	508.44835	353.682037	2.239%
Fresno	2035	MDV	DSL	50	660.909941	314.13588	217.127918	0.002%
Fresno	2035	MDV	GAS	55	632262.8254	527.40799	366.870322	1.670%
Fresno	2035	MDV	DSL	55	492.9390699	354.32083	244.868774	0.001%
Fresno	2035	MDV	GAS	60	720479.1957	567.25767	394.590335	1.903%
Fresno	2035	MDV	DSL	60	561.7163156	414.7662	286.595991	0.001%
Fresno	2035	MDV	GAS	65	772740.798	633.17673	440.444571	2.041%
Fresno	2035	MDV	DSL	65	602.4616994	503.91512	348.138109	0.002%
Fresno	2035	MDV	GAS	70	741873.9381	679.00227	472.320926	1.960%
Fresno	2035	MDV	DSL	70	578.3965673	635.44234	438.935218	0.002%
Fresno	2035	MH	GAS	5	497.3752863	2513.4973	2262.1476	0.001%
Fresno	2035	MH	DSL	5	100.0550334	2409.4505	2168.50544	0.000%
Fresno	2035	MH	GAS	10	2500.309919	2036.1282	1832.51539	0.007%
Fresno	2035	MH	DSL	10	498.0362855	2187.7883	1969.00946	0.001%
Fresno	2035	MH	GAS	15	3158.320021	1392.4296	1253.18668	0.008%
Fresno	2035	MH	DSL	15	672.1760852	1796.3577	1616.72197	0.002%
Fresno	2035	MH	GAS	20	3275.953644	1006.0686	905.461752	0.009%
Fresno	2035	MH	DSL	20	712.8672028	1474.1187	1326.70683	0.002%
Fresno	2035	MH	GAS	25	3650.169749	768.01215	691.210938	0.010%
Fresno	2035	MH	DSL	25	742.4228737	1322.2031	1189.98279	0.002%
Fresno	2035	MH	GAS	30	4127.036754	619.43365	557.490288	0.011%
Fresno	2035	MH	DSL	30	892.7034	1241.0834	1116.97508	0.002%
Fresno	2035	MH	GAS	35	5129.280755	527.84659	475.061927	0.014%
Fresno	2035	MH	DSL	35	1052.614868	1173.7643	1056.38785	0.003%
Fresno	2035	MH	GAS	40	6385.425554	475.23323	427.709904	0.017%
Fresno	2035	MH	DSL	40	1306.657549	1120.2454	1008.22088	0.003%
Fresno	2035	MH	GAS	45	5823.071722	452.05586	406.850274	0.015%
Fresno	2035	MH	DSL	45	1069.979251	1080.5271	972.474412	0.003%
Fresno	2035	MH	GAS	50	5667.045641	454.32184	408.889656	0.015%
Fresno	2035	MH	DSL	50	1197.480732	1054.6092	949.148305	0.003%
Fresno	2035	MH	GAS	55	7411.979173	482.41554	434.173983	0.020%
Fresno	2035	MH	DSL	55	1754.799517	1042.4917	938.242513	0.005%
Fresno	2035	MH	GAS	60	8553.086166	541.20922	487.088295	0.023%
Fresno	2035	MH	DSL	60	2108.685765	1044.1745	939.757077	0.006%
Fresno	2035	MH	GAS	65	1336.527842	641.49795	577.348151	0.004%
Fresno	2035	MH	DSL	65	331.8471551	1059.658	953.692172	0.001%
Fresno	2035	OBUS	GAS	5	300.9471355	2513.4972	2262.14751	0.001%
Fresno	2035	OBUS	DSL	5	245.7914613	3000.8453	2700.76078	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of
								Total VMT
Fresno	2035	OBUS	GAS	10	1512.863815	2036.1285	1832.51567	0.004%
Fresno	2035	OBUS	DSL	10	1133.620685	2416.3788	2174.74096	0.003%
Fresno	2035	OBUS	GAS	15	1911.006427	1392.4297	1253.18671	0.005%
Fresno	2035	OBUS	DSL	15	1492.448843	1966.4595	1769.81355	0.004%
Fresno	2035	OBUS	GAS	20	1982.183026	1006.0686	905.461765	0.005%
Fresno	2035	OBUS	DSL	20	1992.144412	1667.5831	1500.82475	0.005%
Fresno	2035	OBUS	GAS	25	2208.610212	768.01209	691.210878	0.006%
Fresno	2035	OBUS	DSL	25	2066.889037	1554.2995	1398.86952	0.005%
Fresno	2035	OBUS	GAS	30	2497.148374	619.4336	557.49024	0.007%
Fresno	2035	OBUS	DSL	30	2883.156009	1513.4747	1362.12724	0.008%
Fresno	2035	OBUS	GAS	35	3103.576479	527.84663	475.061971	0.008%
Fresno	2035	OBUS	DSL	35	4256.683632	1496.2431	1346.61875	0.011%
Fresno	2035	OBUS	GAS	40	3863.633016	475.23318	427.70986	0.010%
Fresno	2035	OBUS	DSL	40	4543.694778	1388.0184	1249.21658	0.012%
Fresno	2035	OBUS	GAS	45	3523.369062	452.05586	406.85027	0.009%
Fresno	2035	OBUS	DSL	45	5084.936748	1412.7021	1271.43191	0.013%
Fresno	2035	OBUS	GAS	50	3428.962485	454.3218	408.889619	0.009%
Fresno	2035	OBUS	DSL	50	5430.630913	1369.3928	1232.45348	0.014%
Fresno	2035	OBUS	GAS	55	4484.770489	482.41554	434.173989	0.012%
Fresno	2035	OBUS	DSL	55	7117.427162	1329.5933	1196.63399	0.019%
Fresno	2035	OBUS	GAS	60	5175.220475	541.20921	487.088287	0.014%
Fresno	2035	OBUS	DSL	60	4814.166097	1154.5349	1039.08143	0.013%
Fresno	2035	OBUS	GAS	65	808.6937362	641.49789	577.348105	0.002%
Fresno	2035	OBUS	DSL	65	1253.216836	1334.3475	1200.91276	0.003%
Fresno	2035	SBUS	GAS	5	77.84897258	2513.497	2262.14728	0.000%
Fresno	2035	SBUS	DSL	5	153.2615459	2617.434	2355.69059	0.000%
Fresno	2035	SBUS	GAS	10	272.85665	2036.1281	1832.51532	0.001%
Fresno	2035	SBUS	DSL	10	537.1738631	2162.205	1945.98453	0.001%
Fresno	2035	SBUS	GAS	15	545.7133238	1392.4296	1253.1866	0.001%
Fresno	2035	SBUS	DSL	15	1074.347726	1775.3578	1597.82198	0.003%
Fresno	2035	SBUS	GAS	20	740.7171077	1006.0685	905.461637	0.002%
Fresno	2035	SBUS	DSL	20	1458.252304	1400.5807	1260.52261	0.004%
Fresno	2035	SBUS	GAS	25	1169.271698	768.01209	691.210884	0.003%
Fresno	2035	SBUS	DSL	25	2301.949259	1306.7731	1176.09577	0.006%
Fresno	2035	SBUS	GAS	30	1402.818632	619.43357	557.490213	0.004%
Fresno	2035	SBUS	DSL	30	2761.733897	1226.6041	1103.94372	0.007%
Fresno	2035	SBUS	GAS	35	1439.816931	527.84649	475.061843	0.004%
Fresno	2035	SBUS	DSL	35	2834.572408	1160.0738	1044.06647	0.007%
Fresno	2035	SBUS	GAS	40	971.9525215	475.23313	427.709817	0.003%
Fresno	2035	SBUS	DSL	40	1913.486228	1107.1822	996.464003	0.005%
Fresno	2035	SBUS	GAS	45	466.3194211	452.0558	406.850224	0.001%
Fresno	2035	SBUS	DSL	45	918.0446319	1067.9293	961.136336	0.002%
Fresno	2035	SBUS	GAS	50	233.5469216	454.32174	408.889568	0.001%
Fresno	2035	SBUS	DSL	50	459.7846378	1042.315	938.083462	0.001%
Fresno	2035	SBUS	GAS	55	347.619697	482.4154	434.173862	0.001%
Fresno	2035	SBUS	DSL	55	684.3600513	1030.3393	927.305381	0.002%
Fresno	2035	SBUS	GAS	60	193.4666775	541.20909	487.088184	0.001%
Fresno	2035	SBUS	DSL	60	380.8785078	1032.0023	928.802094	0.001%
Fresno	2035	T6	GAS	5	973.5269487	2513.4972	2262.1475	0.003%
Fresno	2035	T6	DSL	5	5137.502657	2559.9333	2303.93998	0.014%
Fresno	2035	T6	GAS	10	4893.928522	2036.1282	1832.5154	0.013%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	T6	DSL	10	25572.55286	2114.705	1903.23447	0.068%
Fresno	2035	T6	GAS	15	6181.870759	1392.4296	1253.18662	0.016%
Fresno	2035	T6	DSL	15	34514.07045	1736.3561	1562.72049	0.091%
Fresno	2035	T6	GAS	20	6412.118155	1006.0686	905.461739	0.017%
Fresno	2035	T6	DSL	20	36603.42601	1369.8122	1232.83102	0.097%
Fresno	2035	T6	GAS	25	7144.581859	768.01214	691.210928	0.019%
Fresno	2035	T6	DSL	25	38121.01655	1278.0654	1150.2589	0.101%
Fresno	2035	T6	GAS	30	8077.967694	619.43366	557.49029	0.021%
Fresno	2035	T6	DSL	30	45837.43399	1199.6577	1079.69191	0.121%
Fresno	2035	T6	GAS	35	10039.68785	527.84662	475.06196	0.027%
Fresno	2035	T6	DSL	35	54048.37171	1134.589	1021.13006	0.143%
Fresno	2035	T6	GAS	40	12498.37693	475.23322	427.709895	0.033%
Fresno	2035	T6	DSL	40	67092.63964	1082.8593	974.573342	0.177%
Fresno	2035	T6	GAS	45	11397.66629	452.05587	406.850281	0.030%
Fresno	2035	T6	DSL	45	54939.97548	1044.4686	940.021765	0.145%
Fresno	2035	T6	GAS	50	11092.27173	454.32181	408.889633	0.029%
Fresno	2035	T6	DSL	50	61486.76705	1019.417	917.475324	0.162%
Fresno	2035	T6	GAS	55	14507.68041	482.41554	434.173988	0.038%
Fresno	2035	T6	DSL	55	90103.28526	1007.7045	906.93402	0.238%
Fresno	2035	T6	GAS	60	16741.19979	541.20927	487.088343	0.044%
Fresno	2035	T6	DSL	60	108274.1968	1009.3309	908.397853	0.286%
Fresno	2035	T6	GAS	65	2616.024468	641.49796	577.348162	0.007%
Fresno	2035	T6	DSL	65	17039.2801	1024.2965	921.866823	0.045%
Fresno	2035	T7	GAS	5	47.10131666	2513.4974	2262.14768	0.000%
Fresno	2035	T7	DSL	5	11173.31499	3956.4896	3560.84066	0.030%
Fresno	2035	T7	GAS	10	230.2084577	2036.1282	1832.51536	0.001%
Fresno	2035	T7	DSL	10	42682.57987	3268.3696	2941.53267	0.113%
Fresno	2035	T7	GAS	15	251.045954	1392.4295	1253.18658	0.001%
Fresno	2035	T7	DSL	15	52201.14437	2683.6148	2415.2533	0.138%
Fresno	2035	T7	GAS	20	429.0332322	1006.0686	905.461705	0.001%
Fresno	2035	T7	DSL	20	128970.4852	2117.0983	1905.38845	0.341%
Fresno	2035	T7	GAS	25	559.9157108	768.01216	691.210943	0.001%
Fresno	2035	T7	DSL	25	117904.473	1975.3064	1777.77576	0.311%
Fresno	2035	T7	GAS	30	1022.511277	619.43356	557.490202	0.003%
Fresno	2035	T7	DSL	30	199055.5773	1854.1237	1668.71137	0.526%
Fresno	2035	T7	GAS	35	1818.673148	527.84658	475.061926	0.005%
Fresno	2035	T7	DSL	35	358105.961	1753.5572	1578.20146	0.946%
Fresno	2035	T7	GAS	40	1585.380627	475.23322	427.709894	0.004%
Fresno	2035	T7	DSL	40	337948.0001	1673.6067	1506.246	0.893%
Fresno	2035	T7	GAS	45	1677.502011	452.05583	406.850251	0.004%
Fresno	2035	T7	DSL	45	473149.1008	1614.2722	1452.84502	1.250%
Fresno	2035	T7	GAS	50	1755.142041	454.32187	408.889685	0.005%
Fresno	2035	T7	DSL	50	492063.4364	1575.5539	1417.9985	1.300%
Fresno	2035	T7	GAS	55	2576.418962	482.41549	434.173944	0.007%
Fresno	2035	T7	DSL	55	600041.2421	1557.4516	1401.70645	1.585%
Fresno	2035	T7	GAS	60	635.8645954	541.2092	487.088277	0.002%
Fresno	2035	T7	DSL	60	182793.5252	1559.9654	1403.96887	0.483%
Fresno	2035	T7	GAS	65	340.8102276	641.49795	577.348155	0.001%
Fresno	2035	T7	DSL	65	100119.6844	1583.0953	1424.78576	0.264%
Fresno	2035	UBUS	GAS	5	191.1678639	2513.4971	2262.14738	0.001%
Fresno	2035	UBUS	DSL	5	471.246816	2299.614	2069.65261	0.001%

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2035	UBUS	GAS	10	686.159464	2036.1282	1832.51542	0.002%
Fresno	2035	UBUS	DSL	10	1691.447896	2299.6141	2069.65266	0.004%
Fresno	2035	UBUS	GAS	15	1372.318955	1392.4296	1253.18661	0.004%
Fresno	2035	UBUS	DSL	15	3382.895703	2299.614	2069.65258	0.009%
Fresno	2035	UBUS	GAS	20	1810.982614	1006.0686	905.46172	0.005%
Fresno	2035	UBUS	DSL	20	4464.243052	2299.6139	2069.65251	0.012%
Fresno	2035	UBUS	GAS	25	2727.469681	768.01208	691.210871	0.007%
Fresno	2035	UBUS	DSL	25	6723.47014	2299.6141	2069.65273	0.018%
Fresno	2035	UBUS	GAS	30	3413.62903	619.43358	557.490218	0.009%
Fresno	2035	UBUS	DSL	30	8414.91731	2299.614	2069.65263	0.022%
Fresno	2035	UBUS	GAS	35	3345.34119	527.8465	475.061852	0.009%
Fresno	2035	UBUS	DSL	35	8246.58158	2299.6139	2069.65249	0.022%
Fresno	2035	UBUS	GAS	40	2411.685638	475.23317	427.70985	0.006%
Fresno	2035	UBUS	DSL	40	5945.03267	2299.614	2069.6526	0.016%
Fresno	2035	UBUS	GAS	45	1051.32669	452.05584	406.85026	0.003%
Fresno	2035	UBUS	DSL	45	2591.619522	2299.6141	2069.65268	0.007%
Fresno	2035	UBUS	GAS	50	534.151171	454.32179	408.889615	0.001%
Fresno	2035	UBUS	DSL	50	1316.733031	2299.6141	2069.65267	0.003%
Fresno	2035	UBUS	GAS	55	662.23948	482.4155	434.173949	0.002%
Fresno	2035	UBUS	DSL	55	1632.482756	2299.614	2069.6526	0.004%
Fresno	2035	UBUS	GAS	60	1083.927567	541.2092	487.088279	0.003%
Fresno	2035	UBUS	DSL	60	2671.983695	2299.614	2069.65263	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide *	0.290
Methane	0.000031
Nitrous oxide	0.000011

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	2,037,366,000	2,610	295,418	31.6	11.2	271,756
Commercial	2,212,049,466	7,503	320,747	34.3	12.2	295,057
Industrial	0		0	0.0	0.0	0
Total	4,249,415,466		616,165	65.9	23.4	566,813

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	107,722,800	138	630,178	59.2	1.2	573,160
Commercial	118,813,266	403	695,058	65.3	1.3	632,169
Industrial	0		0	0.0	0.0	0
Total	226,536,066		1,325,236	124.6	2.5	1,205,329

Notes and Sources:

*Used the 2020 emission factor.

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Emission factors for carbon dioxide from: PG&E 2013. Pacific Gas and Electric Company.; PG&E. 2013. Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

- Per capita emission rates are from the year 2010 based on actual usage from PG&E. The electricity and natural gas usage for this year are calculated as the per capita rate multiplied by the projected population.

Community Greenhouse Gas Inventory

Offroad Equipment

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,301,000	896	0.0329	0.0081	815
Fresno	780,600	537	0	0	489
Percent Fresno/Fresno County	60.0%				

Other Equipment

Location	Population	Emissions (tons/year)			Emissions MTCO2e
		CO2	CH4	N2O	
Fresno County	1,301,000	1,468	0.384	0.12457	1,375
Fresno	780,600	881	0	0	825
Percent Fresno/Fresno County	60.0%				

Total Fresno 1,314

Notes:

Emissions for Fresno County are from OFFROAD2007 for the year assessed; emissions from Fresno are apportioned based on population.

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2035

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

2020 Emissions (MTCO ₂ e per person)*	0.89
--	------

Fresno

Population	780,600
Emissions (MTCO ₂ e per person)	694,734
(estimated by using 2020 California per person emissions)	

Sources/Notes:

* 2020 California per capita emissions rate.

Community Greenhouse Gas Inventory

Summary

Year: 2050

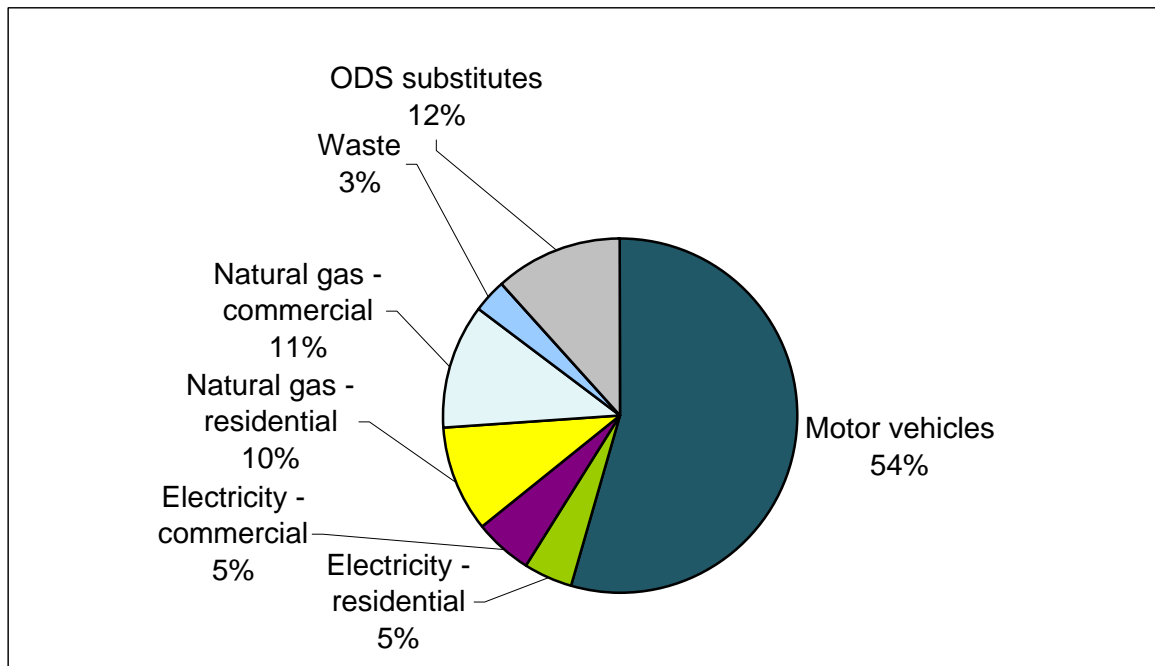
Prepared by FirstCarbon Solutions

	Data	Source
City Information		
Population	912,600	Fresno COG
Employment	362,145	
County Information		
Population	1,521,000	Fresno COG

-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050. Produced under contract by: The Planning Center|DC&E. March 2012.

-Employment: Took the 2010 population (545,000) and 2010 employment (183,825) and cross multiplied with the 2050 population (912,600) and the 2050 employment number (X).

Emissions (MTCO₂e/year)	Without Regulation	With Pavley I and LCFS
Motor vehicles	3,745,122	2,711,894
Electricity - residential	317,710	317,710
Electricity - commercial	362,433	362,433
Natural gas - residential	670,082	670,082
Natural gas - commercial	776,525	776,525
Waste	207,525	207,525
Offroad equipment	1,314	1,314
ODS substitutes	812,214	812,214
<u>Total</u>	<u>6,892,926</u>	5,859,698



Community Greenhouse Gas Inventory

Waste

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Emissions

Emissions (MTCO ₂ e)*	207,525	
Emissions (MTCO ₂ e/person)	0.2274	2010 waste emissions per person

Notes:

*Emissions were calculated by multiplying the 2010 per capita rate by the population for this year.

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without Regulation)

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **18,485,093** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 6,747,058,945 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,287	0	1,287	5
5 - 10 MPH	1,069	1,251	0	2,320	5
10 - 15 MPH	208,444	269,072	572,246	1,049,761	10
15 - 20 MPH	7,043	10,422	11,009	28,474	15
20 - 25 MPH	30,820	51,517	87,828	170,165	20
25 - 30 MPH	125,883	166,689	362,192	654,764	25
30 - 35 MPH	139,515	220,787	275,798	636,099	30
35 - 40 MPH	821,839	1,064,855	2,145,729	4,032,424	35
40 - 45 MPH	367,528	448,475	985,202	1,801,204	40
45 - 50 MPH	312,650	411,980	1,213,378	1,938,008	45
50 - 55 MPH	169,096	238,867	574,977	982,940	50
55 - 60 MPH	750,525	892,376	2,110,693	3,753,594	55
60 - 65 MPH	719,505	893,806	1,820,505	3,433,817	60
65 - 70 MPH	40	52	143	236	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	3,653,958	4,671,436	10,159,699	18,485,093	

Source:
 Fehr and Peers. 2013. 2050 VMT was found by using multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 40 years of VMT growth between 2010 and 2050 and adding that to the 2010 VMT.
 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $(((2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years}) = .0248)$.

2010 VMT found by backcasting the

2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	3607	1049761	28474	170165	654764	636099	4032424	1801204	1938008	982940	3753594	3433817	236	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.91%	0.12%	GAS Heavy duty 0.6% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.52%	0.01%	Light trucks 42.4% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.24%	0.01%	Passenger 44.6% LDA, MCY
LHD1	2.67%	1.63%	DSL Heavy duty 10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.43%	Light trucks 2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.68%	0.00%	Passenger 0.1% LDA, MCY
MDV	16.67%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.09%	0.11%	
SBUS	0.02%	0.04%	
T6	0.30%	1.69%	
T7	0.03%	8.18%	
UBUS	0.05%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1132	834	647	514	428	368	328	303	292	292	303	326	364	390	0
LDT1		1315	969	751	598	497	428	382	353	340	339	352	379	423	453	0
LDT2		1538	1134	878	699	582	500	446	412	397	397	412	443	494	530	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		266	242	205	179	161	149	142	139	142	149	162	183	215	262	0
MDV		1970	1452	1125	895	745	641	572	528	509	508	527	567	633	679	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without Regulation)

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		504	455	382	332	300	281	274	276	289	314	354	415	504	635	0
LDT1		505	456	382	332	300	281	273	276	289	314	354	415	505	637	0
LDT2		503	454	381	332	300	282	274	277	290	314	354	414	502	632	0
LHD1		519	519	519	519	519	519	519	519	519	519	519	0	0	0	0
LHD2		519	519	519	519	519	519	519	519	519	519	519	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		504	455	382	332	300	281	273	276	289	314	354	415	504	635	0
MH		2409	2188	1796	1474	1322	1241	1174	1120	1081	1055	1042	1044	1060	0	0
OBUS		3001	2416	1966	1668	1554	1513	1496	1388	1413	1369	1330	1155	1334	0	0
SBUS		2617	2162	1775	1401	1307	1227	1160	1107	1068	1042	1030	1032	0	0	0
T6		2560	2115	1736	1370	1278	1200	1135	1083	1044	1019	1008	1009	1024	0	0
T7		3956	3268	2684	2117	1975	1854	1754	1674	1614	1576	1557	1560	1583	0	0
UBUS		2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1584	460945	12503	74719	287504	279308	1770618	790900	850970	431604	1648185	1507772	104	0	0
LDT1		235	68417	1856	11090	42673	41457	262807	117391	126307	64062	244635	223794	15	0	0
LDT2		586	170481	4624	27635	106334	103302	654865	292515	314732	159629	609583	557651	38	0	0
LHD1		96	28072	761	4550	17509	17010	107832	48167	51825	26285	100376	91825	6	0	0
LHD2		10	2803	76	454	1749	1699	10769	4810	5176	2625	10024	9170	1	0	0
MCY		25	7177	195	1163	4476	4349	27568	12314	13250	6720	25662	23476	2	0	0
MDV		601	175030	4748	28372	109171	106059	672338	300320	323130	163888	625847	572530	39	0	0
MH		5	1595	43	259	995	966	6126	2736	2944	1493	5703	5217	0	0	0
OBUS		3	965	26	156	602	585	3707	1656	1781	904	3450	3156	0	0	0
SBUS		1	218	6	35	136	132	837	374	402	204	779	713	0	0	0
T6		11	3122	85	506	1947	1892	11991	5356	5763	2923	11162	10211	1	0	0
T7		1	359	10	58	224	217	1377	615	662	336	1282	1173	0	0	0
UBUS		2	535	15	87	334	324	2055	918	987	501	1913	1750	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		4	1230	33	199	767	745	4725	2111	2271	1152	4398	4023	0	0	0
LDT1		0	91	2	15	57	55	349	156	168	85	325	297	0	0	0
LDT2		0	77	2	12	48	47	295	132	142	72	275	251	0	0	0
LHD1		59	17156	465	2781	10700	10395	65899	29436	31671	16063	61342	56116	4	0	0
LHD2		16	4523	123	733	2821	2740	17373	7760	8349	4235	16171	14794	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	136	4	22	85	83	524	234	252	128	488	446	0	0	0
MH		1	345	9	56	215	209	1325	592	637	323	1233	1128	0	0	0
OBUS		4	1173	32	190	732	711	4507	2013	2166	1099	4195	3838	0	0	0
SBUS		1	429	12	70	268	260	1649	736	792	402	1535	1404	0	0	0
T6		61	17712	480	2871	11048	10733	68037	30391	32699	16585	63333	57937	4	0	0
T7		295	85853	2329	13917	53549	52022	329786	147309	158497	80388	306983	280830	19	0	0
UBUS		5	1319	36	214	822	799	5065	2262	2434	1235	4715	4313	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		720	154,409	3,245	15,432	49,444	41,293	233,517	96,366	99,878	50,622	200,527	197,301	15	0	0	1,142,050
LDT1		124	26,623	559	2,661	8,523	7,118	40,258	16,616	17,220	8,728	34,572	34,017	3	0	0	196,898
LDT2		362	77,587	1,630	7,754	24,839	20,745	117,323	48,422	50,185	25,435	100,753	99,134	8	0	0	573,816
LHD1		97	22,949	426	1,838	5,399	4,230	22,853	9,190	9,406	4,795	19,442	0	0	0	0	100,529

Community Greenhouse Gas Inventory

Motor Vehicle Emissions (without Regulation)

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	10	2,292	43	184	539	422	2,282	918	939	479	1,942	0	0	0	0	10,039
MCY	3	698	16	83	288	259	1,568	689	754	402	1,672	1,727	0	0	0	8,158
MDV	476	102,056	2,144	10,199	32,671	27,287	154,319	63,693	66,011	33,457	132,526	130,396	10	0	0	754,769
MH	6	1,304	24	104	307	240	1,298	522	534	272	1,105	1,134	0	0	0	6,845
OBUS	3	789	15	63	186	145	786	316	323	165	668	686	0	0	0	4,142
SBUS	1	178	3	14	42	33	177	71	73	37	151	155	0	0	0	936
T6	11	2,552	47	204	600	470	2,541	1,022	1,046	533	2,162	2,219	0	0	0	13,398
T7	1	293	5	23	69	54	292	117	120	61	248	255	0	0	0	1,539
UBUS	2	437	8	35	103	81	435	175	179	91	370	380	0	0	0	2,296
Total	1,815	392,168	8,167	38,596	123,012	102,379	577,649	238,118	246,671	125,078	496,138	467,402	36	0	0	2,817,228
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	225	5	27	92	84	519	234	264	145	626	670	0	0	0	2,890
LDT1	0	17	0	2	7	6	38	17	19	11	46	49	0	0	0	213
LDT2	0	14	0	2	6	5	32	15	16	9	39	42	0	0	0	181
LHD1	12	3,575	97	580	2,230	2,166	13,733	6,134	6,600	3,348	12,784	0	0	0	0	51,247
LHD2	3	943	26	153	588	571	3,621	1,617	1,740	883	3,370	0	0	0	0	13,511
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	25	1	3	10	9	58	26	29	16	69	74	0	0	0	321
MH	1	303	7	33	114	104	624	266	276	137	516	473	0	0	0	2,854
OBUS	5	1,138	25	127	457	432	2,708	1,122	1,229	604	2,240	1,779	0	0	0	11,861
SBUS	2	373	8	39	140	128	768	327	340	168	635	582	0	0	0	3,508
T6	63	15,039	335	1,579	5,669	5,170	30,994	13,213	13,713	6,788	25,624	23,479	2	0	0	141,603
T7	469	112,661	2,509	11,829	42,469	38,727	232,187	98,985	102,727	50,852	191,961	175,891	12	0	0	1,060,812
UBUS	4	1,217	33	197	759	738	4,676	2,089	2,248	1,140	4,353	3,982	0	0	0	21,433
Total	560	135,529	3,046	14,571	52,542	48,141	289,958	124,046	129,201	64,101	242,263	207,022	14	0	0	1,310,993

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	4,128,221	3,745,122	3,745,122

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **18,253,855** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 6,662,657,075 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.48% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,271	0	1,271	5
5 - 10 MPH	1,056	1,235	0	2,291	5
10 - 15 MPH	205,836	265,706	565,087	1,036,629	10
15 - 20 MPH	6,955	10,292	10,871	28,118	15
20 - 25 MPH	30,435	50,872	86,730	168,037	20
25 - 30 MPH	124,308	164,604	357,661	646,573	25
30 - 35 MPH	137,770	218,025	272,348	628,142	30
35 - 40 MPH	811,558	1,051,535	2,118,888	3,981,981	35
40 - 45 MPH	362,930	442,865	972,877	1,778,672	40
45 - 50 MPH	308,739	406,826	1,198,199	1,913,764	45
50 - 55 MPH	166,981	235,879	567,785	970,644	50
55 - 60 MPH	741,136	881,213	2,084,289	3,706,639	55
60 - 65 MPH	710,505	882,625	1,797,731	3,390,862	60
65 - 70 MPH	40	52	141	233	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	3,608,249	4,612,999	10,032,608	18,253,855	

Source:
 Fehr and Peers. 2013. 2050 VMT was found by using multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 40 years of VMT growth between 2010 and 2050 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $[(2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years} = .0248]$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	3562	1036629	28118	168037	646573	628142	3981981	1778672	1913764	970644	3706639	3390862	233	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.91%	0.12%	GAS Heavy duty 0.6% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.52%	0.01%	Light trucks 42.4% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.24%	0.01%	Passenger 44.6% LDA, MCY
LHD1	2.67%	1.63%	DSL Heavy duty 10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.43%	Light trucks 2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.68%	0.00%	Passenger 0.1% LDA, MCY
MDV	16.67%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.09%	0.11%	
SBUS	0.02%	0.04%	
T6	0.30%	1.69%	
T7	0.03%	8.18%	
UBUS	0.05%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		673	496	385	306	255	219	195	180	174	174	180	194	216	232	0
LDT1		801	590	457	364	303	260	232	215	207	207	214	231	257	276	0
LDT2		1045	770	597	475	395	340	303	280	270	270	280	301	336	360	0
LHD1		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
LHD2		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
MCY		240	218	185	161	144	134	128	125	128	134	146	165	193	236	0
MDV		1370	1010	783	623	518	446	398	367	354	354	367	395	440	472	0
MH		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
OBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
SBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
T6		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
T7		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		304	274	230	200	181	170	165	167	175	190	214	250	304	383	0
LDT1		302	272	228	199	179	168	163	165	173	188	212	248	302	381	0
LDT2		343	310	260	227	205	193	188	189	198	215	242	283	343	431	0
LHD1		467	467	467	467	467	467	467	467	467	467	467	0	0	0	0
LHD2		467	467	467	467	467	467	467	467	467	467	467	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		348	315	264	230	207	194	189	191	200	217	245	287	348	439	0
MH		2169	1969	1617	1327	1190	1117	1056	1008	972	949	938	940	954	0	0
OBUS		2701	2175	1770	1501	1399	1362	1347	1249	1271	1232	1197	1039	1201	0	0
SBUS		2356	1946	1598	1261	1176	1104	1044	996	961	938	927	929	0	0	0
T6		2304	1903	1563	1233	1150	1080	1021	975	940	917	907	908	922	0	0
T7		3561	2942	2415	1905	1778	1669	1578	1506	1453	1418	1402	1404	1425	0	0
UBUS		2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1564	455179	12346	73784	283907	275814	1748469	781006	840325	426205	1627567	1488911	102	0	0
LDT1		232	67561	1833	10952	42139	40938	259519	115922	124727	63260	241574	220994	15	0	0
LDT2		578	168348	4566	27289	105003	102010	646673	288856	310795	157632	601958	550675	38	0	0
LHD1		95	27721	752	4494	17290	16797	106484	47564	51177	25956	99121	90676	6	0	0
LHD2		10	2768	75	449	1727	1677	10634	4750	5111	2592	9899	9055	1	0	0
MCY		24	7087	192	1149	4420	4294	27224	12160	13084	6636	25341	23182	2	0	0
MDV		594	172840	4688	28017	107805	104732	663927	296563	319087	161838	618018	565368	39	0	0
MH		5	1575	43	255	982	954	6050	2702	2907	1475	5631	5151	0	0	0
OBUS		3	953	26	154	594	577	3660	1635	1759	892	3407	3117	0	0	0
SBUS		1	215	6	35	134	130	827	369	397	202	770	704	0	0	0
T6		11	3083	84	500	1923	1868	11841	5289	5691	2886	11022	10083	1	0	0
T7		1	354	10	57	221	215	1360	607	654	331	1266	1158	0	0	0
UBUS		2	528	14	86	329	320	2029	906	975	495	1889	1728	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		4	1215	33	197	758	736	4666	2084	2242	1137	4343	3973	0	0	0
LDT1		0	90	2	15	56	54	344	154	165	84	321	293	0	0	0
LDT2		0	76	2	12	47	46	291	130	140	71	271	248	0	0	0
LHD1		58	16941	460	2746	10566	10265	65075	29068	31275	15863	60575	55414	4	0	0
LHD2		15	4466	121	724	2786	2706	17155	7663	8245	4182	15969	14609	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	135	4	22	84	82	518	231	249	126	482	441	0	0	0
MH		1	341	9	55	212	206	1308	584	629	319	1218	1114	0	0	0
OBUS		4	1159	31	188	723	702	4451	1988	2139	1085	4143	3790	0	0	0
SBUS		1	424	11	69	264	257	1628	727	782	397	1515	1386	0	0	0
T6		60	17491	474	2835	10909	10598	67186	30011	32290	16377	62540	57213	4	0	0
T7		291	84779	2300	13743	52879	51372	325661	145466	156515	79383	303142	277317	19	0	0
UBUS		4	1302	35	211	812	789	5002	2234	2404	1219	4656	4259	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		423	90,687	1,906	9,064	29,039	24,252	137,147	56,597	58,660	29,731	117,772	115,877	9	0	0	670,742
LDT1		75	16,008	336	1,600	5,125	4,280	24,207	9,991	10,355	5,248	20,788	20,454	2	0	0	118,393
LDT2		243	52,054	1,094	5,202	16,665	13,918	78,713	32,487	33,670	17,065	67,596	66,510	5	0	0	384,978
LHD1		87	20,396	378	1,634	4,798	3,760	20,310	8,168	8,360	4,261	17,279	0	0	0	0	89,344

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	9	2,037	38	163	479	375	2,028	816	835	426	1,726	0	0	0	0	8,922
MCY	2	621	14	74	256	230	1,394	613	670	357	1,486	1,535	0	0	0	7,250
MDV	327	70,103	1,473	7,006	22,442	18,743	106,003	43,751	45,344	22,982	91,033	89,570	7	0	0	518,457
MH	5	1,159	21	93	273	214	1,154	464	475	242	982	1,007	0	0	0	6,083
OBUS	3	701	13	56	165	129	698	281	287	146	594	610	0	0	0	3,681
SBUS	1	158	3	13	37	29	158	63	65	33	134	138	0	0	0	832
T6	10	2,268	42	182	534	418	2,259	908	930	474	1,921	1,972	0	0	0	11,907
T7	1	260	5	21	61	48	259	104	107	54	221	226	0	0	0	1,368
UBUS	2	389	7	31	91	72	387	156	159	81	329	338	0	0	0	2,040
Total	1,185	256,841	5,331	25,137	79,966	66,469	374,716	154,399	159,916	81,101	321,861	298,237	23	0	0	1,825,183
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	134	3	16	55	50	309	139	157	87	373	399	0	0	0	1,722
LDT1	0	10	0	1	4	4	23	10	11	6	27	29	0	0	0	126
LDT2	0	9	0	1	4	4	22	10	11	6	26	28	0	0	0	122
LHD1	11	3,177	86	515	1,982	1,925	12,205	5,452	5,866	2,975	11,361	0	0	0	0	45,545
LHD2	3	838	23	136	523	508	3,218	1,437	1,547	784	2,995	0	0	0	0	12,008
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	17	0	2	7	6	39	18	20	11	47	51	0	0	0	219
MH	1	269	6	29	102	93	555	237	246	122	459	420	0	0	0	2,537
OBUS	4	1,012	22	113	406	384	2,406	997	1,092	537	1,990	1,581	0	0	0	10,541
SBUS	1	331	7	35	125	114	682	291	302	149	564	517	0	0	0	3,118
T6	56	13,365	298	1,403	5,038	4,594	27,545	11,743	12,187	6,033	22,773	20,867	1	0	0	125,848
T7	416	100,127	2,230	10,513	37,744	34,418	206,354	87,972	91,298	45,195	170,604	156,322	11	0	0	942,787
UBUS	4	1,082	29	175	675	656	4,156	1,856	1,997	1,013	3,869	3,539	0	0	0	19,048
Total	497	120,371	2,705	12,940	46,664	42,755	257,516	110,162	114,734	56,918	215,090	183,753	13	0	0	1,164,119

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	2,989,301	2,711,894	2,711,894

EMFAC 2011
 2035 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter:
 region - County: Fresno, year - 2035, season - annual average,
 vehicle category - EMFAC2007, model year - aggregated,
 speed - all speeds, fuel - all) Website:
<http://www.arb.ca.gov/emfac/>
 *EMFAC only provides emissions rates up to 2035. Later years
 are assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	LDA	GAS	5	690.6105816	1132.0738	673.304157	0.002%
Fresno	2035	LDA	DSL	5	1.8428816	503.98095	303.820128	0.000%
Fresno	2035	LDA	GAS	10	35638.70556	834.33041	496.221479	0.094%
Fresno	2035	LDA	DSL	10	95.10122957	455.13953	274.429687	0.000%
Fresno	2035	LDA	GAS	15	21241.01664	646.51746	384.518119	0.056%
Fresno	2035	LDA	DSL	15	56.68125803	381.69808	230.236122	0.000%
Fresno	2035	LDA	GAS	20	808500.6477	514.41562	305.950589	2.136%
Fresno	2035	LDA	DSL	20	2157.468978	332.21956	200.462311	0.006%
Fresno	2035	LDA	GAS	25	197184.9121	428.33796	254.755245	0.521%
Fresno	2035	LDA	DSL	25	526.184285	300.07648	181.120132	0.001%
Fresno	2035	LDA	GAS	30	537842.6996	368.21896	218.999388	1.421%
Fresno	2035	LDA	DSL	30	1435.223272	281.26432	169.799873	0.004%
Fresno	2035	LDA	GAS	35	1366088.421	328.47892	195.363966	3.608%
Fresno	2035	LDA	DSL	35	3645.382029	273.56113	165.164459	0.010%
Fresno	2035	LDA	GAS	40	1943582.491	303.47195	180.491197	5.134%
Fresno	2035	LDA	DSL	40	5186.414182	276.08485	166.683111	0.014%
Fresno	2035	LDA	GAS	45	1929011.91	292.32892	173.863779	5.095%
Fresno	2035	LDA	DSL	45	5147.532356	289.12263	174.528631	0.014%
Fresno	2035	LDA	GAS	50	2232462.568	292.1258	173.742948	5.897%
Fresno	2035	LDA	DSL	50	5957.284783	314.18613	189.610649	0.016%
Fresno	2035	LDA	GAS	55	1665080.069	303.02659	180.226197	4.398%
Fresno	2035	LDA	DSL	55	4443.235664	354.30714	213.753563	0.012%
Fresno	2035	LDA	GAS	60	1897400.144	325.91705	193.840412	5.012%
Fresno	2035	LDA	DSL	60	5063.177272	414.65641	250.068876	0.013%
Fresno	2035	LDA	GAS	65	2035032.499	363.783	216.361367	5.375%
Fresno	2035	LDA	DSL	65	5430.446516	503.66351	303.629111	0.014%
Fresno	2035	LDA	GAS	70	1953744.04	390.12334	232.027326	5.161%
Fresno	2035	LDA	DSL	70	5213.529627	634.9815	382.650018	0.014%
Fresno	2035	LDT1	GAS	5	102.505054	1314.7679	800.56989	0.000%
Fresno	2035	LDT1	DSL	5	0.136006444	504.82718	301.829718	0.000%
Fresno	2035	LDT1	GAS	10	5289.735537	969.2076	590.161462	0.014%
Fresno	2035	LDT1	DSL	10	7.018562029	455.72464	272.471938	0.000%
Fresno	2035	LDT1	GAS	15	3152.734078	750.8486	457.196034	0.008%
Fresno	2035	LDT1	DSL	15	4.183131754	381.89043	228.327408	0.000%
Fresno	2035	LDT1	GAS	20	120003.0938	597.5229	363.837256	0.317%
Fresno	2035	LDT1	DSL	20	159.223291	332.14738	198.586677	0.000%
Fresno	2035	LDT1	GAS	25	29267.50821	497.46337	302.908369	0.077%
Fresno	2035	LDT1	DSL	25	38.8329089	299.83242	179.265976	0.000%
Fresno	2035	LDT1	GAS	30	79830.22013	427.66259	260.40672	0.211%
Fresno	2035	LDT1	DSL	30	105.9208623	280.91966	167.958278	0.000%
Fresno	2035	LDT1	GAS	35	202764.0257	381.5275	232.315209	0.536%
Fresno	2035	LDT1	DSL	35	269.032684	273.17532	163.328035	0.001%
Fresno	2035	LDT1	GAS	40	288479.5847	352.52979	214.659347	0.762%
Fresno	2035	LDT1	DSL	40	382.762388	275.71251	164.844988	0.001%
Fresno	2035	LDT1	GAS	45	286316.8661	339.57319	206.769651	0.756%

When the only previous emissions rates up to 2000. Later years are assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	LDT1	DSL	45	379.892857	288.82002	172.681802	0.001%
Fresno	2035	LDT1	GAS	50	331357.0651	339.33117	206.622144	0.875%
Fresno	2035	LDT1	DSL	50	439.65337	314.01753	187.74707	0.001%
Fresno	2035	LDT1	GAS	55	247142.3572	351.98542	214.327262	0.653%
Fresno	2035	LDT1	DSL	55	327.915092	354.35305	211.86316	0.001%
Fresno	2035	LDT1	GAS	60	281624.8653	378.57999	230.521082	0.744%
Fresno	2035	LDT1	DSL	60	373.667387	415.02501	248.13815	0.001%
Fresno	2035	LDT1	GAS	65	302053.17	422.57263	257.308816	0.798%
Fresno	2035	LDT1	DSL	65	400.772191	504.50805	301.638916	0.001%
Fresno	2035	LDT1	GAS	70	289987.7843	453.15713	275.931745	0.766%
Fresno	2035	LDT1	DSL	70	384.763509	636.52822	380.57209	0.001%
Fresno	2035	LDT2	GAS	5	255.4230734	1537.7072	1044.72708	0.001%
Fresno	2035	LDT2	DSL	5	0.115068342	502.58125	342.876199	0.000%
Fresno	2035	LDT2	GAS	10	13181.01512	1133.5198	770.121871	0.035%
Fresno	2035	LDT2	DSL	10	5.938059729	454.17178	309.953162	0.000%
Fresno	2035	LDT2	GAS	15	7856.01344	878.16719	596.631776	0.021%
Fresno	2035	LDT2	DSL	15	3.539141521	381.37983	260.447709	0.000%
Fresno	2035	LDT2	GAS	20	299024.8642	698.82978	474.789734	0.790%
Fresno	2035	LDT2	DSL	20	134.7109823	332.33894	227.095244	0.000%
Fresno	2035	LDT2	GAS	25	72929.06082	581.81597	395.289098	0.193%
Fresno	2035	LDT2	DSL	25	32.8546126	300.48012	205.428217	0.000%
Fresno	2035	LDT2	GAS	30	198921.7045	500.17663	339.823036	0.525%
Fresno	2035	LDT2	DSL	30	89.6144222	281.83435	192.747317	0.000%
Fresno	2035	LDT2	GAS	35	505249.3773	446.2161	303.162106	1.335%
Fresno	2035	LDT2	DSL	35	227.615306	274.19932	187.554772	0.001%
Fresno	2035	LDT2	GAS	40	718836.1816	412.29527	280.11649	1.899%
Fresno	2035	LDT2	DSL	40	323.836374	276.70072	189.255964	0.001%
Fresno	2035	LDT2	GAS	45	713447.1657	397.14374	269.822318	1.885%
Fresno	2035	LDT2	DSL	45	321.408637	289.62318	198.044466	0.001%
Fresno	2035	LDT2	GAS	50	825678.7517	396.86153	269.630532	2.181%
Fresno	2035	LDT2	DSL	50	371.969048	314.46502	214.939279	0.001%
Fresno	2035	LDT2	GAS	55	615831.7597	411.66227	279.686188	1.627%
Fresno	2035	LDT2	DSL	55	277.432793	354.23118	241.984048	0.001%
Fresno	2035	LDT2	GAS	60	701755.5784	442.76497	300.817625	1.854%
Fresno	2035	LDT2	DSL	60	316.141556	414.0467	282.664287	0.001%
Fresno	2035	LDT2	GAS	65	752659.027	494.21508	335.773267	1.988%
Fresno	2035	LDT2	DSL	65	339.0736	502.26661	342.662214	0.001%
Fresno	2035	LDT2	GAS	70	722594.3024	529.98661	360.076591	1.909%
Fresno	2035	LDT2	DSL	70	325.529436	632.42323	431.181097	0.001%
Fresno	2035	LHD1	GAS	5	28730.83376	2513.4971	2262.14741	0.076%
Fresno	2035	LHD1	DSL	5	10879.47172	519.044	467.1396	0.029%
Fresno	2035	LHD1	GAS	10	74917.97247	2036.1283	1832.51546	0.198%
Fresno	2035	LHD1	DSL	10	36179.20697	519.04392	467.139527	0.096%
Fresno	2035	LHD1	GAS	15	170598.308	1392.4297	1253.18676	0.451%
Fresno	2035	LHD1	DSL	15	78353.78669	519.04397	467.139573	0.207%
Fresno	2035	LHD1	GAS	20	197125.0326	1006.0685	905.461657	0.521%
Fresno	2035	LHD1	DSL	20	85901.05561	519.04403	467.139624	0.227%
Fresno	2035	LHD1	GAS	25	151847.0565	768.01202	691.210821	0.401%
Fresno	2035	LHD1	DSL	25	91937.0507	519.04403	467.139624	0.243%
Fresno	2035	LHD1	GAS	30	134282.6251	619.43358	557.490222	0.355%
Fresno	2035	LHD1	DSL	30	77606.52044	519.04398	467.139584	0.205%

When the only previous emissions rates up to 2000. Later years are assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	LHD1	GAS	35	50176.54222	527.84646	475.061813	0.133%
Fresno	2035	LHD1	DSL	35	40955.97348	519.04399	467.13959	0.108%
Fresno	2035	LHD1	GAS	40	14810.97147	475.23314	427.70983	0.039%
Fresno	2035	LHD1	DSL	40	22483.49154	519.04403	467.139628	0.059%
Fresno	2035	LHD1	GAS	45	18233.60859	452.05583	406.850246	0.048%
Fresno	2035	LHD1	DSL	45	24267.07928	519.04407	467.139664	0.064%
Fresno	2035	LHD1	GAS	50	134634.4239	454.32182	408.889636	0.356%
Fresno	2035	LHD1	DSL	50	93702.88848	519.04402	467.139615	0.248%
Fresno	2035	LHD1	GAS	55	37030.82405	482.41548	434.17393	0.098%
Fresno	2035	LHD1	DSL	55	56428.72821	519.04399	467.139593	0.149%
Fresno	2035	LHD2	GAS	5	2869.22626	2513.4973	2262.14755	0.008%
Fresno	2035	LHD2	DSL	5	2868.083817	519.10791	467.197122	0.008%
Fresno	2035	LHD2	GAS	10	7481.739717	2036.1282	1832.51541	0.020%
Fresno	2035	LHD2	DSL	10	9537.686436	519.10792	467.197126	0.025%
Fresno	2035	LHD2	GAS	15	17036.93043	1392.4296	1253.1866	0.045%
Fresno	2035	LHD2	DSL	15	20655.89581	519.10791	467.197119	0.055%
Fresno	2035	LHD2	GAS	20	19686.03938	1006.0685	905.461663	0.052%
Fresno	2035	LHD2	DSL	20	22645.53381	519.10792	467.197126	0.060%
Fresno	2035	LHD2	GAS	25	15164.32093	768.01204	691.210836	0.040%
Fresno	2035	LHD2	DSL	25	24236.76085	519.10797	467.197177	0.064%
Fresno	2035	LHD2	GAS	30	13410.23552	619.43357	557.490209	0.035%
Fresno	2035	LHD2	DSL	30	20458.89806	519.10794	467.197147	0.054%
Fresno	2035	LHD2	GAS	35	5010.918084	527.84649	475.061841	0.013%
Fresno	2035	LHD2	DSL	35	10796.95529	519.10789	467.1971	0.029%
Fresno	2035	LHD2	GAS	40	1479.108812	475.23314	427.709828	0.004%
Fresno	2035	LHD2	DSL	40	5927.175615	519.10788	467.197088	0.016%
Fresno	2035	LHD2	GAS	45	1820.912953	452.05583	406.850243	0.005%
Fresno	2035	LHD2	DSL	45	6397.37166	519.1079	467.197108	0.017%
Fresno	2035	LHD2	GAS	50	13445.36839	454.32177	408.889595	0.036%
Fresno	2035	LHD2	DSL	50	24702.27926	519.10786	467.197078	0.065%
Fresno	2035	LHD2	GAS	55	3698.110984	482.41546	434.173911	0.010%
Fresno	2035	LHD2	DSL	55	14875.93575	519.1079	467.197112	0.039%
Fresno	2035	MCY	GAS	5	10.7527472	266.3941	239.754687	0.000%
Fresno	2035	MCY	GAS	10	554.8915779	242.30076	218.070684	0.001%
Fresno	2035	MCY	GAS	15	330.7208003	205.03074	184.52767	0.001%
Fresno	2035	MCY	GAS	20	12588.28568	178.73877	160.864893	0.033%
Fresno	2035	MCY	GAS	25	3070.152177	160.51344	144.462093	0.008%
Fresno	2035	MCY	GAS	30	8374.163837	148.52267	133.670406	0.022%
Fresno	2035	MCY	GAS	35	21269.87913	141.67529	127.507762	0.056%
Fresno	2035	MCY	GAS	40	30261.41652	139.43553	125.491979	0.080%
Fresno	2035	MCY	GAS	45	30034.5498	141.74257	127.568309	0.079%
Fresno	2035	MCY	GAS	50	34759.24992	149.01587	134.114283	0.092%
Fresno	2035	MCY	GAS	55	25925.15673	162.25023	146.025203	0.068%
Fresno	2035	MCY	GAS	60	29542.35713	183.22816	164.905344	0.078%
Fresno	2035	MCY	GAS	65	31685.28107	214.9121	193.42089	0.084%
Fresno	2035	MCY	GAS	70	30419.62513	262.13732	235.92359	0.080%
Fresno	2035	MDV	GAS	5	262.238077	1969.99	1370.33855	0.001%
Fresno	2035	MDV	DSL	5	0.204451984	504.23305	348.357588	0.000%
Fresno	2035	MDV	GAS	10	13532.69976	1452.2532	1010.20434	0.036%
Fresno	2035	MDV	DSL	10	10.55066914	455.31385	314.587226	0.000%
Fresno	2035	MDV	GAS	15	8065.620673	1125.0378	782.583902	0.021%

When the only previous emissions rates up to 2000. Later years are assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	MDV	DSL	15	6.28830171	381.75539	263.807654	0.000%
Fresno	2035	MDV	GAS	20	307003.1737	895.31583	622.79059	0.811%
Fresno	2035	MDV	DSL	20	239.3527774	332.19804	229.596761	0.001%
Fresno	2035	MDV	GAS	25	74874.88875	745.37717	518.48947	0.198%
Fresno	2035	MDV	DSL	25	58.3756578	300.00377	207.37211	0.000%
Fresno	2035	MDV	GAS	30	204229.1639	640.79385	445.741211	0.539%
Fresno	2035	MDV	DSL	30	159.2257691	281.16164	194.364833	0.000%
Fresno	2035	MDV	GAS	35	518729.9462	571.66991	397.658678	1.370%
Fresno	2035	MDV	DSL	35	404.4240135	273.44619	189.03863	0.001%
Fresno	2035	MDV	GAS	40	738015.5598	528.22783	367.441432	1.949%
Fresno	2035	MDV	DSL	40	575.3884012	275.97394	190.783609	0.002%
Fresno	2035	MDV	GAS	45	732482.7386	508.81188	353.935103	1.935%
Fresno	2035	MDV	DSL	45	571.0747511	289.03251	199.798324	0.002%
Fresno	2035	MDV	GAS	50	847708.7407	508.44835	353.682037	2.239%
Fresno	2035	MDV	DSL	50	660.909941	314.13588	217.127918	0.002%
Fresno	2035	MDV	GAS	55	632262.8254	527.40799	366.870322	1.670%
Fresno	2035	MDV	DSL	55	492.9390699	354.32083	244.868774	0.001%
Fresno	2035	MDV	GAS	60	720479.1957	567.25767	394.590335	1.903%
Fresno	2035	MDV	DSL	60	561.7163156	414.7662	286.595991	0.001%
Fresno	2035	MDV	GAS	65	772740.798	633.17673	440.444571	2.041%
Fresno	2035	MDV	DSL	65	602.4616994	503.91512	348.138109	0.002%
Fresno	2035	MDV	GAS	70	741873.9381	679.00227	472.320926	1.960%
Fresno	2035	MDV	DSL	70	578.3965673	635.44234	438.935218	0.002%
Fresno	2035	MH	GAS	5	497.3752863	2513.4973	2262.1476	0.001%
Fresno	2035	MH	DSL	5	100.0550334	2409.4505	2168.50544	0.000%
Fresno	2035	MH	GAS	10	2500.309919	2036.1282	1832.51539	0.007%
Fresno	2035	MH	DSL	10	498.0362855	2187.7883	1969.00946	0.001%
Fresno	2035	MH	GAS	15	3158.320021	1392.4296	1253.18668	0.008%
Fresno	2035	MH	DSL	15	672.1760852	1796.3577	1616.72197	0.002%
Fresno	2035	MH	GAS	20	3275.953644	1006.0686	905.461752	0.009%
Fresno	2035	MH	DSL	20	712.8672028	1474.1187	1326.70683	0.002%
Fresno	2035	MH	GAS	25	3650.169749	768.01215	691.210938	0.010%
Fresno	2035	MH	DSL	25	742.4228737	1322.2031	1189.98279	0.002%
Fresno	2035	MH	GAS	30	4127.036754	619.43365	557.490288	0.011%
Fresno	2035	MH	DSL	30	892.7034	1241.0834	1116.97508	0.002%
Fresno	2035	MH	GAS	35	5129.280755	527.84659	475.061927	0.014%
Fresno	2035	MH	DSL	35	1052.614868	1173.7643	1056.38785	0.003%
Fresno	2035	MH	GAS	40	6385.425554	475.23323	427.709904	0.017%
Fresno	2035	MH	DSL	40	1306.657549	1120.2454	1008.22088	0.003%
Fresno	2035	MH	GAS	45	5823.071722	452.05586	406.850274	0.015%
Fresno	2035	MH	DSL	45	1069.979251	1080.5271	972.474412	0.003%
Fresno	2035	MH	GAS	50	5667.045641	454.32184	408.889656	0.015%
Fresno	2035	MH	DSL	50	1197.480732	1054.6092	949.148305	0.003%
Fresno	2035	MH	GAS	55	7411.979173	482.41554	434.173983	0.020%
Fresno	2035	MH	DSL	55	1754.799517	1042.4917	938.242513	0.005%
Fresno	2035	MH	GAS	60	8553.086166	541.20922	487.088295	0.023%
Fresno	2035	MH	DSL	60	2108.685765	1044.1745	939.757077	0.006%
Fresno	2035	MH	GAS	65	1336.527842	641.49795	577.348151	0.004%
Fresno	2035	MH	DSL	65	331.8471551	1059.658	953.692172	0.001%
Fresno	2035	OBUS	GAS	5	300.9471355	2513.4972	2262.14751	0.001%
Fresno	2035	OBUS	DSL	5	245.7914613	3000.8453	2700.76078	0.001%

Since the only previous emissions rates up to 2000, later years are assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	OBUS	GAS	10	1512.863815	2036.1285	1832.51567	0.004%
Fresno	2035	OBUS	DSL	10	1133.620685	2416.3788	2174.74096	0.003%
Fresno	2035	OBUS	GAS	15	1911.006427	1392.4297	1253.18671	0.005%
Fresno	2035	OBUS	DSL	15	1492.448843	1966.4595	1769.81355	0.004%
Fresno	2035	OBUS	GAS	20	1982.183026	1006.0686	905.461765	0.005%
Fresno	2035	OBUS	DSL	20	1992.144412	1667.5831	1500.82475	0.005%
Fresno	2035	OBUS	GAS	25	2208.610212	768.01209	691.210878	0.006%
Fresno	2035	OBUS	DSL	25	2066.889037	1554.2995	1398.86952	0.005%
Fresno	2035	OBUS	GAS	30	2497.148374	619.4336	557.49024	0.007%
Fresno	2035	OBUS	DSL	30	2883.156009	1513.4747	1362.12724	0.008%
Fresno	2035	OBUS	GAS	35	3103.576479	527.84663	475.061971	0.008%
Fresno	2035	OBUS	DSL	35	4256.683632	1496.2431	1346.61875	0.011%
Fresno	2035	OBUS	GAS	40	3863.633016	475.23318	427.70986	0.010%
Fresno	2035	OBUS	DSL	40	4543.694778	1388.0184	1249.21658	0.012%
Fresno	2035	OBUS	GAS	45	3523.369062	452.05586	406.85027	0.009%
Fresno	2035	OBUS	DSL	45	5084.936748	1412.7021	1271.43191	0.013%
Fresno	2035	OBUS	GAS	50	3428.962485	454.3218	408.889619	0.009%
Fresno	2035	OBUS	DSL	50	5430.630913	1369.3928	1232.45348	0.014%
Fresno	2035	OBUS	GAS	55	4484.770489	482.41554	434.173989	0.012%
Fresno	2035	OBUS	DSL	55	7117.427162	1329.5933	1196.63399	0.019%
Fresno	2035	OBUS	GAS	60	5175.220475	541.20921	487.088287	0.014%
Fresno	2035	OBUS	DSL	60	4814.166097	1154.5349	1039.08143	0.013%
Fresno	2035	OBUS	GAS	65	808.6937362	641.49789	577.348105	0.002%
Fresno	2035	OBUS	DSL	65	1253.216836	1334.3475	1200.91276	0.003%
Fresno	2035	SBUS	GAS	5	77.84897258	2513.497	2262.14728	0.000%
Fresno	2035	SBUS	DSL	5	153.2615459	2617.434	2355.69059	0.000%
Fresno	2035	SBUS	GAS	10	272.85665	2036.1281	1832.51532	0.001%
Fresno	2035	SBUS	DSL	10	537.1738631	2162.205	1945.98453	0.001%
Fresno	2035	SBUS	GAS	15	545.7133238	1392.4296	1253.1866	0.001%
Fresno	2035	SBUS	DSL	15	1074.347726	1775.3578	1597.82198	0.003%
Fresno	2035	SBUS	GAS	20	740.7171077	1006.0685	905.461637	0.002%
Fresno	2035	SBUS	DSL	20	1458.252304	1400.5807	1260.52261	0.004%
Fresno	2035	SBUS	GAS	25	1169.271698	768.01209	691.210884	0.003%
Fresno	2035	SBUS	DSL	25	2301.949259	1306.7731	1176.09577	0.006%
Fresno	2035	SBUS	GAS	30	1402.818632	619.43357	557.490213	0.004%
Fresno	2035	SBUS	DSL	30	2761.733897	1226.6041	1103.94372	0.007%
Fresno	2035	SBUS	GAS	35	1439.816931	527.84649	475.061843	0.004%
Fresno	2035	SBUS	DSL	35	2834.572408	1160.0738	1044.06647	0.007%
Fresno	2035	SBUS	GAS	40	971.9525215	475.23313	427.709817	0.003%
Fresno	2035	SBUS	DSL	40	1913.486228	1107.1822	996.464003	0.005%
Fresno	2035	SBUS	GAS	45	466.3194211	452.0558	406.850224	0.001%
Fresno	2035	SBUS	DSL	45	918.0446319	1067.9293	961.136336	0.002%
Fresno	2035	SBUS	GAS	50	233.5469216	454.32174	408.889568	0.001%
Fresno	2035	SBUS	DSL	50	459.7846378	1042.315	938.083462	0.001%
Fresno	2035	SBUS	GAS	55	347.619697	482.4154	434.173862	0.001%
Fresno	2035	SBUS	DSL	55	684.3600513	1030.3393	927.305381	0.002%
Fresno	2035	SBUS	GAS	60	193.4666775	541.20909	487.088184	0.001%
Fresno	2035	SBUS	DSL	60	380.8785078	1032.0023	928.802094	0.001%
Fresno	2035	T6	GAS	5	973.5269487	2513.4972	2262.1475	0.003%
Fresno	2035	T6	DSL	5	5137.502657	2559.9333	2303.93998	0.014%
Fresno	2035	T6	GAS	10	4893.928522	2036.1282	1832.5154	0.013%

When the only previous emissions rates up to 2000. Later years are assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX (gms/mile)	Percent of Total VMT
Fresno	2035	T6	DSL	10	25572.55286	2114.705	1903.23447	0.068%
Fresno	2035	T6	GAS	15	6181.870759	1392.4296	1253.18662	0.016%
Fresno	2035	T6	DSL	15	34514.07045	1736.3561	1562.72049	0.091%
Fresno	2035	T6	GAS	20	6412.118155	1006.0686	905.461739	0.017%
Fresno	2035	T6	DSL	20	36603.42601	1369.8122	1232.83102	0.097%
Fresno	2035	T6	GAS	25	7144.581859	768.01214	691.210928	0.019%
Fresno	2035	T6	DSL	25	38121.01655	1278.0654	1150.2589	0.101%
Fresno	2035	T6	GAS	30	8077.967694	619.43366	557.49029	0.021%
Fresno	2035	T6	DSL	30	45837.43399	1199.6577	1079.69191	0.121%
Fresno	2035	T6	GAS	35	10039.68785	527.84662	475.06196	0.027%
Fresno	2035	T6	DSL	35	54048.37171	1134.589	1021.13006	0.143%
Fresno	2035	T6	GAS	40	12498.37693	475.23322	427.709895	0.033%
Fresno	2035	T6	DSL	40	67092.63964	1082.8593	974.573342	0.177%
Fresno	2035	T6	GAS	45	11397.66629	452.05587	406.850281	0.030%
Fresno	2035	T6	DSL	45	54939.97548	1044.4686	940.021765	0.145%
Fresno	2035	T6	GAS	50	11092.27173	454.32181	408.889633	0.029%
Fresno	2035	T6	DSL	50	61486.76705	1019.417	917.475324	0.162%
Fresno	2035	T6	GAS	55	14507.68041	482.41554	434.173988	0.038%
Fresno	2035	T6	DSL	55	90103.28526	1007.7045	906.93402	0.238%
Fresno	2035	T6	GAS	60	16741.19979	541.20927	487.088343	0.044%
Fresno	2035	T6	DSL	60	108274.1968	1009.3309	908.397853	0.286%
Fresno	2035	T6	GAS	65	2616.024468	641.49796	577.348162	0.007%
Fresno	2035	T6	DSL	65	17039.2801	1024.2965	921.866823	0.045%
Fresno	2035	T7	GAS	5	47.10131666	2513.4974	2262.14768	0.000%
Fresno	2035	T7	DSL	5	11173.31499	3956.4896	3560.84066	0.030%
Fresno	2035	T7	GAS	10	230.2084577	2036.1282	1832.51536	0.001%
Fresno	2035	T7	DSL	10	42682.57987	3268.3696	2941.53267	0.113%
Fresno	2035	T7	GAS	15	251.045954	1392.4295	1253.18658	0.001%
Fresno	2035	T7	DSL	15	52201.14437	2683.6148	2415.2533	0.138%
Fresno	2035	T7	GAS	20	429.0332322	1006.0686	905.461705	0.001%
Fresno	2035	T7	DSL	20	128970.4852	2117.0983	1905.38845	0.341%
Fresno	2035	T7	GAS	25	559.9157108	768.01216	691.210943	0.001%
Fresno	2035	T7	DSL	25	117904.473	1975.3064	1777.77576	0.311%
Fresno	2035	T7	GAS	30	1022.511277	619.43356	557.490202	0.003%
Fresno	2035	T7	DSL	30	199055.5773	1854.1237	1668.71137	0.526%
Fresno	2035	T7	GAS	35	1818.673148	527.84658	475.061926	0.005%
Fresno	2035	T7	DSL	35	358105.961	1753.5572	1578.20146	0.946%
Fresno	2035	T7	GAS	40	1585.380627	475.23322	427.709894	0.004%
Fresno	2035	T7	DSL	40	337948.0001	1673.6067	1506.246	0.893%
Fresno	2035	T7	GAS	45	1677.502011	452.05583	406.850251	0.004%
Fresno	2035	T7	DSL	45	473149.1008	1614.2722	1452.84502	1.250%
Fresno	2035	T7	GAS	50	1755.142041	454.32187	408.889685	0.005%
Fresno	2035	T7	DSL	50	492063.4364	1575.5539	1417.9985	1.300%
Fresno	2035	T7	GAS	55	2576.418962	482.41549	434.173944	0.007%
Fresno	2035	T7	DSL	55	600041.2421	1557.4516	1401.70645	1.585%
Fresno	2035	T7	GAS	60	635.8645954	541.2092	487.088277	0.002%
Fresno	2035	T7	DSL	60	182793.5252	1559.9654	1403.96887	0.483%
Fresno	2035	T7	GAS	65	340.8102276	641.49795	577.348155	0.001%
Fresno	2035	T7	DSL	65	100119.6844	1583.0953	1424.78576	0.264%
Fresno	2035	UBUS	GAS	5	191.1678639	2513.4971	2262.14738	0.001%
Fresno	2035	UBUS	DSL	5	471.246816	2299.614	2069.65261	0.001%

Since the only provided emissions rates up to 2000, later years are assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNE (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2035	UBUS	GAS	10	686.159464	2036.1282	1832.51542	0.002%
Fresno	2035	UBUS	DSL	10	1691.447896	2299.6141	2069.65266	0.004%
Fresno	2035	UBUS	GAS	15	1372.318955	1392.4296	1253.18661	0.004%
Fresno	2035	UBUS	DSL	15	3382.895703	2299.614	2069.65258	0.009%
Fresno	2035	UBUS	GAS	20	1810.982614	1006.0686	905.46172	0.005%
Fresno	2035	UBUS	DSL	20	4464.243052	2299.6139	2069.65251	0.012%
Fresno	2035	UBUS	GAS	25	2727.469681	768.01208	691.210871	0.007%
Fresno	2035	UBUS	DSL	25	6723.47014	2299.6141	2069.65273	0.018%
Fresno	2035	UBUS	GAS	30	3413.62903	619.43358	557.490218	0.009%
Fresno	2035	UBUS	DSL	30	8414.91731	2299.614	2069.65263	0.022%
Fresno	2035	UBUS	GAS	35	3345.34119	527.8465	475.061852	0.009%
Fresno	2035	UBUS	DSL	35	8246.58158	2299.6139	2069.65249	0.022%
Fresno	2035	UBUS	GAS	40	2411.685638	475.23317	427.70985	0.006%
Fresno	2035	UBUS	DSL	40	5945.03267	2299.614	2069.6526	0.016%
Fresno	2035	UBUS	GAS	45	1051.32669	452.05584	406.85026	0.003%
Fresno	2035	UBUS	DSL	45	2591.619522	2299.6141	2069.65268	0.007%
Fresno	2035	UBUS	GAS	50	534.151171	454.32179	408.889615	0.001%
Fresno	2035	UBUS	DSL	50	1316.733031	2299.6141	2069.65267	0.003%
Fresno	2035	UBUS	GAS	55	662.23948	482.4155	434.173949	0.002%
Fresno	2035	UBUS	DSL	55	1632.482756	2299.614	2069.6526	0.004%
Fresno	2035	UBUS	GAS	60	1083.927567	541.2092	487.088279	0.003%
Fresno	2035	UBUS	DSL	60	2671.983695	2299.614	2069.65263	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide *	0.290
Methane	0.000031
Nitrous oxide	0.000011

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	2,381,886,000	2,610	345373	36.9	13.1	317,710
Commercial	2,717,173,935	7,503	393990	42.1	14.9	362,433
Industrial	0		0	0.0	0.0	0
Total	5,099,059,935		739,364	79.0	28.0	680,144

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	125,938,800	138	736,742	69.3	1.4	670,082
Commercial	145,944,435	403	853,775	80.3	1.6	776,525
Industrial	0		0	0.0	0.0	0
Total	271,883,235		1,590,517	149.5	3.0	1,446,607

Notes and Sources:

*Used the 2020 emission factor.

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Emission factors for carbon dioxide from: PG&E 2013. Pacific Gas and Electric Company. ; PG&E. 2013. Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

- Per capita emission rates are from the year 2010 based on actual usage from PG&E. The electricity and natural gas usage for this year are calculated as the per capita rate multiplied by the projected population.

Community Greenhouse Gas Inventory

Offroad Equipment

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Year 2035	Emissions (tons/year)			Emissions MTCO2e
	Population	CO2	CH4	N2O	
Fresno County	1,301,000	896	0.0329	0.0081	815
Fresno	780,600	537	0	0	489
Percent Fresno/Fresno County	60.0%				

Other Equipment

Location	Year 2035	Emissions (tons/year)			Emissions MTCO2e
	Population	CO2	CH4	N2O	
Fresno County	1,301,000	1,468	0.384	0.12457	1,375
Fresno	780,600	881	0	0	825
Percent Fresno/Fresno County	60.0%				

Total Fresno 1,314

Notes:

*OFFROAD only provides emissions rates up to 2040. Emissions for Fresno County are from OFFROAD2007 for the year 2035; emissions from Fresno are apportioned based on population.

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2050

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

2020 Emissions (MTCO ₂ e per person)*	0.89
--	------

Fresno

Population	912,600
Emissions (MTCO ₂ e per person)	812,214
(estimated by using 2020 California per person emissions)	

Sources/Notes:

* 2020 California per capita emissions rate.

Community Greenhouse Gas Inventory

Summary

Year: 2056

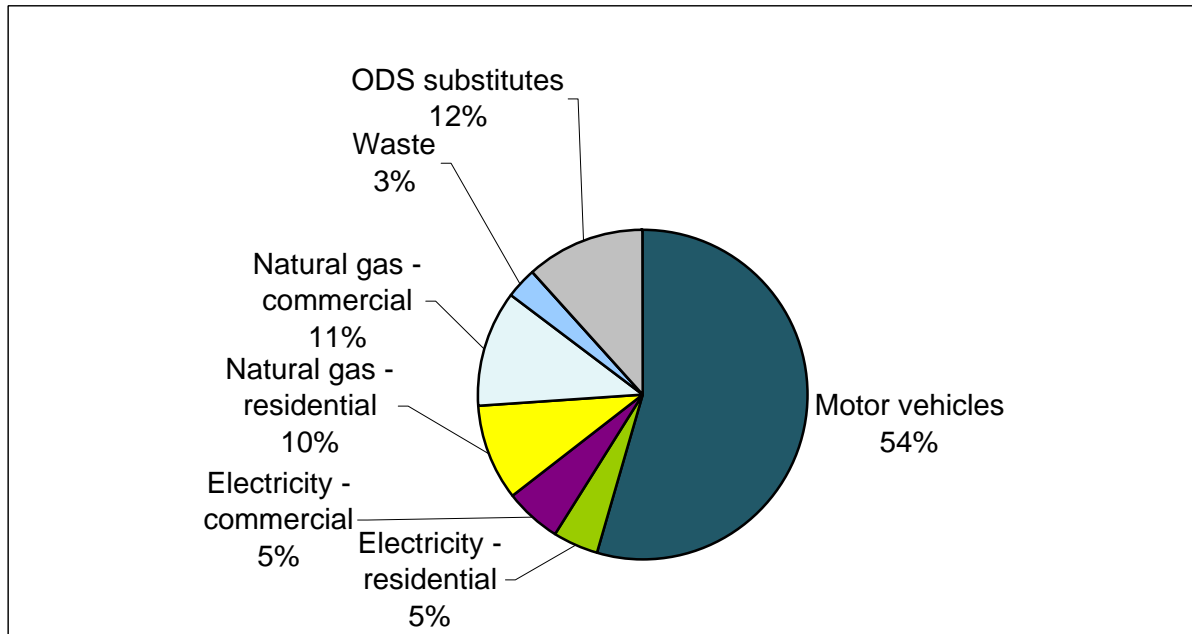
Prepared by FirstCarbon Solutions

	Data	Source
City Information		
Population	970,000	Fresno COG
Employment	393,200	
County Information		
Population	1,616,667	Fresno COG

-Fresno Council of Governments (Fresno COG), San Joaquin Valley Demographic Forecasts 2010 to 2050. Produced under contract by: The Planning Center|DC&E. March 2012.

-Employment: Took the 2010 population (545,000) and 2010 employment (183,825) and cross multiplied with the 2056 population and the 2056 employment number (X).

Emissions (MTCO₂e/year)	Without Regulation	With Pavley I and LCFS
Motor vehicles	4,028,432	2,914,488
Electricity - residential	337,694	337,694
Electricity - commercial	393,513	393,513
Natural gas - residential	712,228	712,228
Natural gas - commercial	843,115	843,115
Waste	220,578	220,578
Offroad equipment	1,314	1,314
ODS substitutes	863,300	863,300
<u>Total</u>	<u>7,400,173</u>	<u>6,286,229</u>



Community Greenhouse Gas Inventory

Waste

Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Waste Emissions

Emissions (MTCO ₂ e)*	220,578	
Emissions (MTCO ₂ e/person)	0.2274	2010 waste emissions per person

Notes:

*Emissions were calculated by multiplying the 2010 per capita rate by the population for this year.

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without Pavley I and LCFS)
Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **19,883,447** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 7,257,458,155 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.54% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,384	0	1,384	5
5 - 10 MPH	1,150	1,345	0	2,496	5
10 - 15 MPH	224,212	289,426	615,535	1,129,173	10
15 - 20 MPH	7,576	11,210	11,842	30,628	15
20 - 25 MPH	33,152	55,414	94,472	183,038	20
25 - 30 MPH	135,406	179,299	389,591	704,296	25
30 - 35 MPH	150,069	237,489	296,661	684,218	30
35 - 40 MPH	884,009	1,145,409	2,308,049	4,337,467	35
40 - 45 MPH	395,330	482,401	1,059,730	1,937,461	40
45 - 50 MPH	336,301	443,145	1,305,167	2,084,613	45
50 - 55 MPH	181,888	256,936	618,473	1,057,297	50
55 - 60 MPH	807,301	959,882	2,270,362	4,037,545	55
60 - 65 MPH	773,934	961,421	1,958,222	3,693,577	60
65 - 70 MPH	43	56	154	254	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	3,930,371	5,024,819	10,928,257	19,883,447	

Source:
 Fehr and Peers. 2013. 2056 VMT was found by multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 46 years of VMT growth between 2010 and 2056 and adding that to the 2010 VMT.

 Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $(((2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years}) = .0248)$.

2010 VMT found by backcasting the
 2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	3880	1129173	30628	183038	704296	684218	4337467	1937461	2084613	1057297	4037545	3693577	254	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	GAS	DSL	% Includes
LDA	43.91%	0.12%	GAS Heavy duty 0.6% MH, OBUS, SBUS, T6, T7, UBUS
LDT1	6.52%	0.01%	Light trucks 42.4% MDV, LDT1, LDT2, LHD1, LHD2
LDT2	16.24%	0.01%	Passenger 44.6% LDA, MCY
LHD1	2.67%	1.63%	DSL Heavy duty 10.2% MH, OBUS, SBUS, T6, T7, UBUS
LHD2	0.27%	0.43%	Light trucks 2.1% MDV, LDT1, LDT2, LHD1, LHD2
MCY	0.68%	0.00%	Passenger 0.1% LDA, MCY
MDV	16.67%	0.01%	Total 100.0%
MH	0.15%	0.03%	
OBUS	0.09%	0.11%	
SBUS	0.02%	0.04%	
T6	0.30%	1.69%	
T7	0.03%	8.18%	
UBUS	0.05%	0.13%	

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1132	834	647	514	428	368	328	303	292	292	303	326	364	390	0
LDT1		1315	969	751	598	497	428	382	353	340	339	352	379	423	453	0
LDT2		1538	1134	878	699	582	500	446	412	397	397	412	443	494	530	0
LHD1		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
LHD2		2513	2036	1392	1006	768	619	528	475	452	454	482	0	0	0	0
MCY		266	242	205	179	161	149	142	139	142	149	162	183	215	262	0
MDV		1970	1452	1125	895	745	641	572	528	509	508	527	567	633	679	0
MH		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
OBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
SBUS		2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
T6		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0
T7		2513	2036	1392	1006	768	619	528	475	452	454	482	541	641	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (without Pavley I and LCFS)
Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2513	2036	1392	1006	768	619	528	475	452	454	482	541	0	0	0
------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		504	455	382	332	300	281	274	276	289	314	354	415	504	635	0
LDT1		505	456	382	332	300	281	273	276	289	314	354	415	505	637	0
LDT2		503	454	381	332	300	282	274	277	290	314	354	414	502	632	0
LHD1		519	519	519	519	519	519	519	519	519	519	519	0	0	0	0
LHD2		519	519	519	519	519	519	519	519	519	519	519	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		504	455	382	332	300	281	273	276	289	314	354	415	504	635	0
MH		2409	2188	1796	1474	1322	1241	1174	1120	1081	1055	1042	1044	1060	0	0
OBUS		3001	2416	1966	1668	1554	1513	1496	1388	1413	1369	1330	1155	1334	0	0
SBUS		2617	2162	1775	1401	1307	1227	1160	1107	1068	1042	1030	1032	0	0	0
T6		2560	2115	1736	1370	1278	1200	1135	1083	1044	1019	1008	1009	1024	0	0
T7		3956	3268	2684	2117	1975	1854	1754	1674	1614	1576	1557	1560	1583	0	0
UBUS		2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	0	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1704	495815	13449	80371	309253	300437	1904561	850730	915344	464254	1772866	1621832	111	0	0
LDT1		253	73592	1996	11929	45901	44593	282688	126271	135861	68908	263141	240723	17	0	0
LDT2		630	183378	4974	29725	114377	111117	704404	314643	338541	171705	655697	599836	41	0	0
LHD1		104	30196	819	4895	18834	18297	115990	51810	55745	28274	107969	98771	7	0	0
LHD2		10	3016	82	489	1881	1827	11583	5174	5567	2824	10782	9864	1	0	0
MCY		27	7720	209	1251	4815	4678	29654	13246	14252	7228	27603	25252	2	0	0
MDV		647	188270	5107	30518	117429	114082	723198	323038	347574	176286	673191	615841	42	0	0
MH		6	1715	47	278	1070	1039	6590	2943	3167	1606	6134	5611	0	0	0
OBUS		4	1038	28	168	647	629	3987	1781	1916	972	3711	3395	0	0	0
SBUS		1	234	6	38	146	142	901	402	433	220	838	767	0	0	0
T6		12	3358	91	544	2094	2035	12898	5761	6199	3144	12006	10983	1	0	0
T7		1	386	10	63	241	234	1481	662	712	361	1379	1261	0	0	0
UBUS		2	575	16	93	359	349	2210	987	1062	539	2057	1882	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		5	1323	36	214	825	802	5082	2270	2443	1239	4731	4328	0	0	0
LDT1		0	98	3	16	61	59	375	168	180	91	349	319	0	0	0
LDT2		0	83	2	13	52	50	317	142	153	77	295	270	0	0	0
LHD1		63	18453	501	2991	11510	11182	70884	31663	34067	17279	65983	60362	4	0	0
LHD2		17	4865	132	789	3034	2948	18687	8347	8981	4555	17395	15913	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		1	147	4	24	92	89	564	252	271	137	525	480	0	0	0
MH		1	371	10	60	231	225	1425	637	685	347	1327	1214	0	0	0
OBUS		4	1262	34	205	787	765	4848	2166	2330	1182	4513	4128	0	0	0
SBUS		2	462	13	75	288	280	1773	792	852	432	1651	1510	0	0	0
T6		65	19052	517	3088	11883	11545	73184	32690	35173	17839	68124	62320	4	0	0
T7		317	92348	2505	14970	57600	55958	354734	158453	170487	86470	330205	302074	21	0	0
UBUS		5	1418	38	230	885	859	5448	2434	2618	1328	5071	4639	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		774	166,090	3,491	16,600	53,185	44,417	251,182	103,656	107,434	54,452	215,696	212,226	16	0	0	1,228,443
LDT1		133	28,637	602	2,862	9,168	7,657	43,303	17,872	18,523	9,388	37,188	36,590	3	0	0	211,793
LDT2		389	83,457	1,754	8,340	26,718	22,315	126,198	52,085	53,981	27,359	108,375	106,633	8	0	0	617,224
LHD1		105	24,685	458	1,977	5,808	4,550	24,582	9,886	10,118	5,157	20,913	0	0	0	0	108,133

Community Greenhouse Gas Inventory

Motor Vehicle Emissions (without Pavley I and LCFS)

Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	10	2,465	46	197	580	454	2,455	987	1,010	515	2,088	0	0	0	0	10,799
MCY	3	751	17	90	310	279	1,687	742	811	432	1,798	1,858	0	0	0	8,775
MDV	512	109,777	2,307	10,970	35,143	29,351	165,992	68,511	71,005	35,987	142,551	140,260	11	0	0	811,866
MH	6	1,402	26	112	330	259	1,397	562	575	293	1,188	1,219	0	0	0	7,363
OBUS	4	849	16	68	200	156	845	340	348	177	719	738	0	0	0	4,455
SBUS	1	192	4	15	45	35	191	77	79	40	162	167	0	0	0	1,006
T6	12	2,745	51	220	646	506	2,733	1,099	1,125	573	2,325	2,387	0	0	0	14,411
T7	1	315	6	25	74	58	314	126	129	66	267	274	0	0	0	1,655
UBUS	2	470	9	38	111	87	468	188	193	98	398	409	0	0	0	2,469
Total	1,952	421,835	8,785	41,515	132,317	110,124	621,347	256,132	265,331	134,540	533,670	502,760	39	0	0	3,030,345
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	242	5	29	99	91	558	252	284	156	673	721	0	0	0	3,109
LDT1	0	18	0	2	7	7	41	19	21	12	50	53	0	0	0	229
LDT2	0	15	0	2	6	6	35	16	18	10	42	45	0	0	0	194
LHD1	13	3,846	104	623	2,399	2,330	14,772	6,598	7,100	3,601	13,751	0	0	0	0	55,123
LHD2	3	1,014	28	164	632	614	3,895	1,740	1,872	949	3,625	0	0	0	0	14,534
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	27	1	3	11	10	62	28	31	17	75	80	0	0	0	345
MH	1	326	7	36	123	112	672	286	297	147	555	509	0	0	0	3,070
OBUS	5	1,224	27	137	491	465	2,912	1,207	1,322	650	2,409	1,914	0	0	0	12,758
SBUS	2	401	9	42	151	138	826	352	365	181	683	626	0	0	0	3,774
T6	67	16,176	360	1,699	6,098	5,561	33,338	14,213	14,750	7,302	27,562	25,255	2	0	0	152,315
T7	504	121,184	2,699	12,724	45,682	41,657	249,751	106,473	110,498	54,699	206,483	189,197	13	0	0	1,141,060
UBUS	4	1,310	36	212	817	793	5,030	2,247	2,418	1,226	4,682	4,283	0	0	0	23,054
Total	602	145,781	3,277	15,673	56,516	51,783	311,893	133,429	138,974	68,950	260,590	222,682	15	0	0	1,410,166

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	4,440,511	4,028,432	4,028,432

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Vehicle Miles Traveled

Vehicle miles traveled / day **19,617,524** Source: Fehr and Peers. 2013
 Vehicle miles traveled / year 7,160,396,260 Source: VMT per day * 365 days/year
 Annual Growth Rate in VMT: 2.48% Source: Fresno COG

Speed bins	AM peak	PM peak	Off peak	Total	Speed
0 - 5 MPH	0	1,366	0	1,366	5
5 - 10 MPH	1,135	1,327	0	2,462	5
10 - 15 MPH	221,214	285,555	607,302	1,114,071	10
15 - 20 MPH	7,474	11,060	11,684	30,218	15
20 - 25 MPH	32,708	54,673	93,209	180,590	20
25 - 30 MPH	133,595	176,901	384,380	694,876	25
30 - 35 MPH	148,062	234,312	292,694	675,068	30
35 - 40 MPH	872,186	1,130,091	2,277,181	4,279,457	35
40 - 45 MPH	390,043	475,949	1,045,557	1,911,549	40
45 - 50 MPH	331,803	437,218	1,287,712	2,056,733	45
50 - 55 MPH	179,455	253,500	610,201	1,043,157	50
55 - 60 MPH	796,504	947,045	2,239,998	3,983,546	55
60 - 65 MPH	763,583	948,563	1,932,032	3,644,178	60
65 - 70 MPH	43	56	152	250	65
70 - 75 MPH	0	0	0	0	70
>75 MPH	0	0	0	0	75
Total	3,877,806	4,957,617	10,782,101	19,617,524	

Source:
 Fehr and Peers. 2013. 2056 VMT was found by multiplying the 2010 VMT numbers found previously with the annual growth rate multiplied by the 46 years of VMT growth between 2010 and 2056 and adding that to the 2010 VMT.

Annual VMT Growth Rate: Was found by interpolating between 2011 and 2056 VMT: $[(2056 \text{ VMT} - 2011 \text{ VMT}) / 45 \text{ years} = .0248]$.

2010 VMT found by backcasting the

2011 Existing Daily VMT By Speed Bin: Origin-Destination Method

Speed bins	AM peak	PM peak	Off peak	Total
0 - 5 MPH	0	638	0	638
5 - 10 MPH	530	620	0	1,150
10 - 15 MPH	103,322	133,374	283,652	520,348
15 - 20 MPH	3,491	5,166	5,457	14,114
20 - 25 MPH	15,277	25,536	43,535	84,348
25 - 30 MPH	62,398	82,625	179,532	324,555
30 - 35 MPH	69,155	109,440	136,708	315,303
35 - 40 MPH	407,371	527,830	1,063,600	1,998,801
40 - 45 MPH	182,177	222,301	488,347	892,825
45 - 50 MPH	154,975	204,211	601,450	960,636
50 - 55 MPH	83,818	118,402	285,006	487,226
55 - 60 MPH	372,022	442,335	1,046,233	1,860,590
60 - 65 MPH	356,646	443,044	902,392	1,702,082
65 - 70 MPH	20	26	71	117
70 - 75 MPH	0	0	0	0
>75 MPH	0	0	0	0
Total	1,811,202	2,315,548	5,035,983	9,162,733

VMT/day per speed bin

Speed (mph)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
VMT/day	3828	1114071	30218	180590	694876	675068	4279457	1911549	2056733	1043157	3983546	3644178	250	0	0

Vehicle Class using EMFAC2011 VMT percentages

Vehicle Class	% Includes
GAS	
LDA	43.91%
LDT1	6.52%
LDT2	16.24%
LHD1	2.67%
LHD2	0.27%
MCY	0.68%
MDV	16.67%
MH	0.15%
OBUS	0.09%
SBUS	0.02%
T6	0.30%
T7	0.03%
UBUS	0.05%
DSL	
GAS Heavy duty	0.6%
Light trucks	42.4%
Passenger	44.6%
DSL Heavy duty	10.2%
Light trucks	2.1%
Passenger	0.1%
Total	100.0%

Emission factors (g CO2/mile)

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		673	496	385	306	255	219	195	180	174	174	180	194	216	232	0
LDT1		801	590	457	364	303	260	232	215	207	207	214	231	257	276	0
LDT2		1045	770	597	475	395	340	303	280	270	270	280	301	336	360	0
LHD1		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
LHD2		2262	1833	1253	905	691	557	475	428	407	409	434	0	0	0	0
MCY		240	218	185	161	144	134	128	125	128	134	146	165	193	236	0
MDV		1370	1010	783	623	518	446	398	367	354	354	367	395	440	472	0
MH		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
OBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
SBUS		2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
T6		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0
T7		2262	1833	1253	905	691	557	475	428	407	409	434	487	577	0	0

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

UBUS	2262	1833	1253	905	691	557	475	428	407	409	434	487	0	0	0
------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---

Emission factors (g CO2/mile)

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		304	274	230	200	181	170	165	167	175	190	214	250	304	383	0
LDT1		302	272	228	199	179	168	163	165	173	188	212	248	302	381	0
LDT2		343	310	260	227	205	193	188	189	198	215	242	283	343	431	0
LHD1		467	467	467	467	467	467	467	467	467	467	467	0	0	0	0
LHD2		467	467	467	467	467	467	467	467	467	467	467	0	0	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		348	315	264	230	207	194	189	191	200	217	245	287	348	439	0
MH		2169	1969	1617	1327	1190	1117	1056	1008	972	949	938	940	954	0	0
OBUS		2701	2175	1770	1501	1399	1362	1347	1249	1271	1232	1197	1039	1201	0	0
SBUS		2356	1946	1598	1261	1176	1104	1044	996	961	938	927	929	0	0	0
T6		2304	1903	1563	1233	1150	1080	1021	975	940	917	907	908	922	0	0
T7		3561	2942	2415	1905	1778	1669	1578	1506	1453	1418	1402	1404	1425	0	0
UBUS		2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	2070	0	0

VMT/day by Vehicle Class and speed

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		1681	489183	13269	79296	305117	296419	1879089	839352	903102	458045	1749156	1600141	110	0	0
LDT1		249	72608	1969	11770	45287	43996	278907	124582	134044	67986	259621	237504	16	0	0
LDT2		622	180925	4907	29328	112848	109631	694983	310435	334013	169409	646927	591814	41	0	0
LHD1		102	29792	808	4829	18582	18052	114438	51117	55000	27895	106525	97450	7	0	0
LHD2		10	2975	81	482	1856	1803	11428	5105	5493	2786	10638	9732	1	0	0
MCY		26	7617	207	1235	4751	4615	29257	13069	14061	7132	27234	24914	2	0	0
MDV		638	185752	5038	30110	115859	112556	713526	318718	342925	173929	664188	607604	42	0	0
MH		6	1693	46	274	1056	1026	6501	2904	3125	1585	6052	5536	0	0	0
OBUS		4	1024	28	166	639	621	3934	1757	1891	959	3662	3350	0	0	0
SBUS		1	231	6	38	144	140	889	397	427	217	827	757	0	0	0
T6		11	3313	90	537	2066	2007	12725	5684	6116	3102	11846	10836	1	0	0
T7		1	380	10	62	237	231	1462	653	702	356	1360	1245	0	0	0
UBUS		2	568	15	92	354	344	2181	974	1048	532	2030	1857	0	0	0

DSL	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
LDA		4	1305	35	212	814	791	5014	2240	2410	1222	4668	4270	0	0	0
LDT1		0	96	3	16	60	58	370	165	178	90	344	315	0	0	0
LDT2		0	82	2	13	51	49	313	140	150	76	291	267	0	0	0
LHD1		63	18206	494	2951	11356	11032	69936	31239	33612	17048	65100	59554	4	0	0
LHD2		16	4800	130	778	2994	2908	18437	8235	8861	4494	17162	15700	1	0	0
MCY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV		0	145	4	23	90	88	556	248	267	136	518	474	0	0	0
MH		1	366	10	59	228	222	1406	628	676	343	1309	1197	0	0	0
OBUS		4	1245	34	202	777	755	4783	2137	2299	1166	4452	4073	0	0	0
SBUS		2	455	12	74	284	276	1750	782	841	426	1629	1490	0	0	0
T6		65	18797	510	3047	11724	11390	72205	32253	34702	17601	67213	61487	4	0	0
T7		313	91113	2471	14769	56830	55209	349990	156333	168207	85313	325789	298034	20	0	0
UBUS		5	1399	38	227	873	848	5375	2401	2583	1310	5004	4577	0	0	0

Emissions (tons CO2/year) - converted from grams by multiplying by 1.1E-6 and converted to annual emissions by multiplying by 365 days/year

GAS	Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA		454	97,461	2,048	9,741	31,209	26,064	147,393	60,826	63,042	31,952	126,570	124,534	10	0	0	720,850
LDT1		80	17,204	362	1,719	5,508	4,600	26,015	10,737	11,128	5,640	22,341	21,982	2	0	0	127,238
LDT2		261	55,943	1,176	5,591	17,910	14,958	84,593	34,914	36,185	18,340	72,646	71,478	5	0	0	413,738
LHD1		93	21,919	407	1,756	5,157	4,041	21,828	8,778	8,984	4,580	18,570	0	0	0	0	96,018

Community Greenhouse Gas Inventory
Motor Vehicle Emissions (with Pavley I and LCFS)
Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

LHD2	9	2,189	41	175	515	404	2,180	877	897	457	1,854	0	0	0	0	9,589
MCY	3	667	15	80	276	248	1,498	658	720	384	1,597	1,650	0	0	0	7,792
MDV	351	75,341	1,583	7,529	24,119	20,144	113,922	47,020	48,731	24,698	97,834	96,262	7	0	0	557,189
MH	5	1,245	23	100	293	230	1,240	499	510	260	1,055	1,083	0	0	0	6,538
OBUS	3	753	14	60	177	139	750	302	309	157	638	655	0	0	0	3,956
SBUS	1	170	3	14	40	31	170	68	70	36	144	148	0	0	0	894
T6	10	2,437	45	195	573	449	2,427	976	999	509	2,065	2,119	0	0	0	12,797
T7	1	280	5	22	66	52	279	112	115	58	237	243	0	0	0	1,470
UBUS	2	418	8	33	98	77	416	167	171	87	354	363	0	0	0	2,193
Total	1,274	276,029	5,730	27,015	85,940	71,435	402,710	165,934	171,862	87,159	345,906	320,517	25	0	0	1,961,534
DSL Speed	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	Total
LDA	1	144	3	17	59	54	333	150	169	93	401	429	0	0	0	1,851
LDT1	0	11	0	1	4	4	24	11	12	7	29	31	0	0	0	135
LDT2	0	10	0	1	4	4	24	11	12	7	28	30	0	0	0	131
LHD1	12	3,415	93	554	2,130	2,069	13,117	5,859	6,304	3,197	12,210	0	0	0	0	48,947
LHD2	3	900	24	146	562	546	3,458	1,545	1,662	843	3,219	0	0	0	0	12,905
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	0	18	0	2	8	7	42	19	21	12	51	55	0	0	0	235
MH	1	289	6	32	109	99	596	254	264	131	493	452	0	0	0	2,726
OBUS	5	1,087	24	122	436	413	2,586	1,072	1,174	577	2,139	1,699	0	0	0	11,329
SBUS	1	356	8	37	134	122	733	313	324	161	606	556	0	0	0	3,351
T6	60	14,364	320	1,508	5,415	4,938	29,603	12,620	13,097	6,484	24,474	22,426	2	0	0	135,250
T7	448	107,607	2,397	11,299	40,564	36,990	221,770	94,544	98,118	48,571	183,349	168,000	12	0	0	1,013,219
UBUS	4	1,163	32	188	725	705	4,467	1,995	2,147	1,089	4,158	3,804	0	0	0	20,471
Total	534	129,364	2,908	13,907	50,150	45,950	276,754	118,392	123,305	61,170	231,158	197,481	13	0	0	1,251,085

Total Emissions

	tons/year	metric tons/ year	MTCO2e/ year
Carbon dioxide	3,212,619	2,914,488	2,914,488

EMFAC 2011
 2035 Estimated Annual Emission Rates
 EMFAC 2007 Vehicle Categories
 Fresno COUNTY
 San Joaquin Valley AIR BASIN
 San Joaquin Valley Unified APCD

EMFAC2011: EMFAC Emission Rates Database. (Enter: region - County: Fresno, year - 2035, season - annual average, vehicle category - EMFAC2007, model year - aggregated, speed - all speeds, fuel - all) Website: <http://www.arb.ca.gov/emfac/>
 *EMFAC only provides emissions rates up to 2035. Later years are assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2035	LDA	GAS	5	691	1132.07	673.30	0.002%
Fresno	2035	LDA	DSL	5	2	503.98	303.82	0.000%
Fresno	2035	LDA	GAS	10	35639	834.33	496.22	0.094%
Fresno	2035	LDA	DSL	10	95	455.14	274.43	0.000%
Fresno	2035	LDA	GAS	15	21241	646.52	384.52	0.056%
Fresno	2035	LDA	DSL	15	57	381.70	230.24	0.000%
Fresno	2035	LDA	GAS	20	808501	514.42	305.95	2.136%
Fresno	2035	LDA	DSL	20	2157	332.22	200.46	0.006%
Fresno	2035	LDA	GAS	25	197185	428.34	254.76	0.521%
Fresno	2035	LDA	DSL	25	526	300.08	181.12	0.001%
Fresno	2035	LDA	GAS	30	537843	368.22	219.00	1.421%
Fresno	2035	LDA	DSL	30	1435	281.26	169.80	0.004%
Fresno	2035	LDA	GAS	35	1366088	328.48	195.36	3.608%
Fresno	2035	LDA	DSL	35	3645	273.56	165.16	0.010%
Fresno	2035	LDA	GAS	40	1943582	303.47	180.49	5.134%
Fresno	2035	LDA	DSL	40	5186	276.08	166.68	0.014%
Fresno	2035	LDA	GAS	45	1929012	292.33	173.86	5.095%
Fresno	2035	LDA	DSL	45	5148	289.12	174.53	0.014%
Fresno	2035	LDA	GAS	50	2232463	292.13	173.74	5.897%
Fresno	2035	LDA	DSL	50	5957	314.19	189.61	0.016%
Fresno	2035	LDA	GAS	55	1665080	303.03	180.23	4.398%
Fresno	2035	LDA	DSL	55	4443	354.31	213.75	0.012%
Fresno	2035	LDA	GAS	60	1897400	325.92	193.84	5.012%
Fresno	2035	LDA	DSL	60	5063	414.66	250.07	0.013%
Fresno	2035	LDA	GAS	65	2035032	363.78	216.36	5.375%
Fresno	2035	LDA	DSL	65	5430	503.66	303.63	0.014%
Fresno	2035	LDA	GAS	70	1953744	390.12	232.03	5.161%
Fresno	2035	LDA	DSL	70	5214	634.98	382.65	0.014%
Fresno	2035	LDT1	GAS	5	103	1314.77	800.57	0.000%
Fresno	2035	LDT1	DSL	5	0	504.83	301.83	0.000%
Fresno	2035	LDT1	GAS	10	5290	969.21	590.16	0.014%
Fresno	2035	LDT1	DSL	10	7	455.72	272.47	0.000%
Fresno	2035	LDT1	GAS	15	3153	750.85	457.20	0.008%
Fresno	2035	LDT1	DSL	15	4	381.89	228.33	0.000%
Fresno	2035	LDT1	GAS	20	120003	597.52	363.84	0.317%
Fresno	2035	LDT1	DSL	20	159	332.15	198.59	0.000%
Fresno	2035	LDT1	GAS	25	29268	497.46	302.91	0.077%
Fresno	2035	LDT1	DSL	25	39	299.83	179.27	0.000%
Fresno	2035	LDT1	GAS	30	79830	427.66	260.41	0.211%
Fresno	2035	LDT1	DSL	30	106	280.92	167.96	0.000%
Fresno	2035	LDT1	GAS	35	202764	381.53	232.32	0.536%
Fresno	2035	LDT1	DSL	35	269	273.18	163.33	0.001%
Fresno	2035	LDT1	GAS	40	288480	352.53	214.66	0.762%
Fresno	2035	LDT1	DSL	40	383	275.71	164.84	0.001%
Fresno	2035	LDT1	GAS	45	286317	339.57	206.77	0.756%

Assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2035	LDT1	DSL	45	380	288.82	172.68	0.001%
Fresno	2035	LDT1	GAS	50	331357	339.33	206.62	0.875%
Fresno	2035	LDT1	DSL	50	440	314.02	187.75	0.001%
Fresno	2035	LDT1	GAS	55	247142	351.99	214.33	0.653%
Fresno	2035	LDT1	DSL	55	328	354.35	211.86	0.001%
Fresno	2035	LDT1	GAS	60	281625	378.58	230.52	0.744%
Fresno	2035	LDT1	DSL	60	374	415.03	248.14	0.001%
Fresno	2035	LDT1	GAS	65	302053	422.57	257.31	0.798%
Fresno	2035	LDT1	DSL	65	401	504.51	301.64	0.001%
Fresno	2035	LDT1	GAS	70	289988	453.16	275.93	0.766%
Fresno	2035	LDT1	DSL	70	385	636.53	380.57	0.001%
Fresno	2035	LDT2	GAS	5	255	1537.71	1044.73	0.001%
Fresno	2035	LDT2	DSL	5	0	502.58	342.88	0.000%
Fresno	2035	LDT2	GAS	10	13181	1133.52	770.12	0.035%
Fresno	2035	LDT2	DSL	10	6	454.17	309.95	0.000%
Fresno	2035	LDT2	GAS	15	7856	878.17	596.63	0.021%
Fresno	2035	LDT2	DSL	15	4	381.38	260.45	0.000%
Fresno	2035	LDT2	GAS	20	299025	698.83	474.79	0.790%
Fresno	2035	LDT2	DSL	20	135	332.34	227.10	0.000%
Fresno	2035	LDT2	GAS	25	72929	581.82	395.29	0.193%
Fresno	2035	LDT2	DSL	25	33	300.48	205.43	0.000%
Fresno	2035	LDT2	GAS	30	198922	500.18	339.82	0.525%
Fresno	2035	LDT2	DSL	30	90	281.83	192.75	0.000%
Fresno	2035	LDT2	GAS	35	505249	446.22	303.16	1.335%
Fresno	2035	LDT2	DSL	35	228	274.20	187.55	0.001%
Fresno	2035	LDT2	GAS	40	718836	412.30	280.12	1.899%
Fresno	2035	LDT2	DSL	40	324	276.70	189.26	0.001%
Fresno	2035	LDT2	GAS	45	713447	397.14	269.82	1.885%
Fresno	2035	LDT2	DSL	45	321	289.62	198.04	0.001%
Fresno	2035	LDT2	GAS	50	825679	396.86	269.63	2.181%
Fresno	2035	LDT2	DSL	50	372	314.47	214.94	0.001%
Fresno	2035	LDT2	GAS	55	615832	411.66	279.69	1.627%
Fresno	2035	LDT2	DSL	55	277	354.23	241.98	0.001%
Fresno	2035	LDT2	GAS	60	701756	442.76	300.82	1.854%
Fresno	2035	LDT2	DSL	60	316	414.05	282.66	0.001%
Fresno	2035	LDT2	GAS	65	752659	494.22	335.77	1.988%
Fresno	2035	LDT2	DSL	65	339	502.27	342.66	0.001%
Fresno	2035	LDT2	GAS	70	722594	529.99	360.08	1.909%
Fresno	2035	LDT2	DSL	70	326	632.42	431.18	0.001%
Fresno	2035	LHD1	GAS	5	28731	2513.50	2262.15	0.076%
Fresno	2035	LHD1	DSL	5	10879	519.04	467.14	0.029%
Fresno	2035	LHD1	GAS	10	74918	2036.13	1832.52	0.198%
Fresno	2035	LHD1	DSL	10	36179	519.04	467.14	0.096%
Fresno	2035	LHD1	GAS	15	170598	1392.43	1253.19	0.451%
Fresno	2035	LHD1	DSL	15	78354	519.04	467.14	0.207%
Fresno	2035	LHD1	GAS	20	197125	1006.07	905.46	0.521%
Fresno	2035	LHD1	DSL	20	85901	519.04	467.14	0.227%
Fresno	2035	LHD1	GAS	25	151847	768.01	691.21	0.401%
Fresno	2035	LHD1	DSL	25	91937	519.04	467.14	0.243%
Fresno	2035	LHD1	GAS	30	134283	619.43	557.49	0.355%
Fresno	2035	LHD1	DSL	30	77607	519.04	467.14	0.205%

assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2035	LHD1	GAS	35	50177	527.85	475.06	0.133%
Fresno	2035	LHD1	DSL	35	40956	519.04	467.14	0.108%
Fresno	2035	LHD1	GAS	40	14811	475.23	427.71	0.039%
Fresno	2035	LHD1	DSL	40	22483	519.04	467.14	0.059%
Fresno	2035	LHD1	GAS	45	18234	452.06	406.85	0.048%
Fresno	2035	LHD1	DSL	45	24267	519.04	467.14	0.064%
Fresno	2035	LHD1	GAS	50	134634	454.32	408.89	0.356%
Fresno	2035	LHD1	DSL	50	93703	519.04	467.14	0.248%
Fresno	2035	LHD1	GAS	55	37031	482.42	434.17	0.098%
Fresno	2035	LHD1	DSL	55	56429	519.04	467.14	0.149%
Fresno	2035	LHD2	GAS	5	2869	2513.50	2262.15	0.008%
Fresno	2035	LHD2	DSL	5	2868	519.11	467.20	0.008%
Fresno	2035	LHD2	GAS	10	7482	2036.13	1832.52	0.020%
Fresno	2035	LHD2	DSL	10	9538	519.11	467.20	0.025%
Fresno	2035	LHD2	GAS	15	17037	1392.43	1253.19	0.045%
Fresno	2035	LHD2	DSL	15	20656	519.11	467.20	0.055%
Fresno	2035	LHD2	GAS	20	19686	1006.07	905.46	0.052%
Fresno	2035	LHD2	DSL	20	22646	519.11	467.20	0.060%
Fresno	2035	LHD2	GAS	25	15164	768.01	691.21	0.040%
Fresno	2035	LHD2	DSL	25	24237	519.11	467.20	0.064%
Fresno	2035	LHD2	GAS	30	13410	619.43	557.49	0.035%
Fresno	2035	LHD2	DSL	30	20459	519.11	467.20	0.054%
Fresno	2035	LHD2	GAS	35	5011	527.85	475.06	0.013%
Fresno	2035	LHD2	DSL	35	10797	519.11	467.20	0.029%
Fresno	2035	LHD2	GAS	40	1479	475.23	427.71	0.004%
Fresno	2035	LHD2	DSL	40	5927	519.11	467.20	0.016%
Fresno	2035	LHD2	GAS	45	1821	452.06	406.85	0.005%
Fresno	2035	LHD2	DSL	45	6397	519.11	467.20	0.017%
Fresno	2035	LHD2	GAS	50	13445	454.32	408.89	0.036%
Fresno	2035	LHD2	DSL	50	24702	519.11	467.20	0.065%
Fresno	2035	LHD2	GAS	55	3698	482.42	434.17	0.010%
Fresno	2035	LHD2	DSL	55	14876	519.11	467.20	0.039%
Fresno	2035	MCY	GAS	5	11	266.39	239.75	0.000%
Fresno	2035	MCY	GAS	10	555	242.30	218.07	0.001%
Fresno	2035	MCY	GAS	15	331	205.03	184.53	0.001%
Fresno	2035	MCY	GAS	20	12588	178.74	160.86	0.033%
Fresno	2035	MCY	GAS	25	3070	160.51	144.46	0.008%
Fresno	2035	MCY	GAS	30	8374	148.52	133.67	0.022%
Fresno	2035	MCY	GAS	35	21270	141.68	127.51	0.056%
Fresno	2035	MCY	GAS	40	30261	139.44	125.49	0.080%
Fresno	2035	MCY	GAS	45	30035	141.74	127.57	0.079%
Fresno	2035	MCY	GAS	50	34759	149.02	134.11	0.092%
Fresno	2035	MCY	GAS	55	25925	162.25	146.03	0.068%
Fresno	2035	MCY	GAS	60	29542	183.23	164.91	0.078%
Fresno	2035	MCY	GAS	65	31685	214.91	193.42	0.084%
Fresno	2035	MCY	GAS	70	30420	262.14	235.92	0.080%
Fresno	2035	MDV	GAS	5	262	1969.99	1370.34	0.001%
Fresno	2035	MDV	DSL	5	0	504.23	348.36	0.000%
Fresno	2035	MDV	GAS	10	13533	1452.25	1010.20	0.036%
Fresno	2035	MDV	DSL	10	11	455.31	314.59	0.000%
Fresno	2035	MDV	GAS	15	8066	1125.04	782.58	0.021%

assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa) (gms/mile)	Percent of Total VMT
Fresno	2035	MDV	DSL	15	6	381.76	263.81	0.000%
Fresno	2035	MDV	GAS	20	307003	895.32	622.79	0.811%
Fresno	2035	MDV	DSL	20	239	332.20	229.60	0.001%
Fresno	2035	MDV	GAS	25	74875	745.38	518.49	0.198%
Fresno	2035	MDV	DSL	25	58	300.00	207.37	0.000%
Fresno	2035	MDV	GAS	30	204229	640.79	445.74	0.539%
Fresno	2035	MDV	DSL	30	159	281.16	194.36	0.000%
Fresno	2035	MDV	GAS	35	518730	571.67	397.66	1.370%
Fresno	2035	MDV	DSL	35	404	273.45	189.04	0.001%
Fresno	2035	MDV	GAS	40	738016	528.23	367.44	1.949%
Fresno	2035	MDV	DSL	40	575	275.97	190.78	0.002%
Fresno	2035	MDV	GAS	45	732483	508.81	353.94	1.935%
Fresno	2035	MDV	DSL	45	571	289.03	199.80	0.002%
Fresno	2035	MDV	GAS	50	847709	508.45	353.68	2.239%
Fresno	2035	MDV	DSL	50	661	314.14	217.13	0.002%
Fresno	2035	MDV	GAS	55	632263	527.41	366.87	1.670%
Fresno	2035	MDV	DSL	55	493	354.32	244.87	0.001%
Fresno	2035	MDV	GAS	60	720479	567.26	394.59	1.903%
Fresno	2035	MDV	DSL	60	562	414.77	286.60	0.001%
Fresno	2035	MDV	GAS	65	772741	633.18	440.44	2.041%
Fresno	2035	MDV	DSL	65	602	503.92	348.14	0.002%
Fresno	2035	MDV	GAS	70	741874	679.00	472.32	1.960%
Fresno	2035	MDV	DSL	70	578	635.44	438.94	0.002%
Fresno	2035	MH	GAS	5	497	2513.50	2262.15	0.001%
Fresno	2035	MH	DSL	5	100	2409.45	2168.51	0.000%
Fresno	2035	MH	GAS	10	2500	2036.13	1832.52	0.007%
Fresno	2035	MH	DSL	10	498	2187.79	1969.01	0.001%
Fresno	2035	MH	GAS	15	3158	1392.43	1253.19	0.008%
Fresno	2035	MH	DSL	15	672	1796.36	1616.72	0.002%
Fresno	2035	MH	GAS	20	3276	1006.07	905.46	0.009%
Fresno	2035	MH	DSL	20	713	1474.12	1326.71	0.002%
Fresno	2035	MH	GAS	25	3650	768.01	691.21	0.010%
Fresno	2035	MH	DSL	25	742	1322.20	1189.98	0.002%
Fresno	2035	MH	GAS	30	4127	619.43	557.49	0.011%
Fresno	2035	MH	DSL	30	893	1241.08	1116.98	0.002%
Fresno	2035	MH	GAS	35	5129	527.85	475.06	0.014%
Fresno	2035	MH	DSL	35	1053	1173.76	1056.39	0.003%
Fresno	2035	MH	GAS	40	6385	475.23	427.71	0.017%
Fresno	2035	MH	DSL	40	1307	1120.25	1008.22	0.003%
Fresno	2035	MH	GAS	45	5823	452.06	406.85	0.015%
Fresno	2035	MH	DSL	45	1070	1080.53	972.47	0.003%
Fresno	2035	MH	GAS	50	5667	454.32	408.89	0.015%
Fresno	2035	MH	DSL	50	1197	1054.61	949.15	0.003%
Fresno	2035	MH	GAS	55	7412	482.42	434.17	0.020%
Fresno	2035	MH	DSL	55	1755	1042.49	938.24	0.005%
Fresno	2035	MH	GAS	60	8553	541.21	487.09	0.023%
Fresno	2035	MH	DSL	60	2109	1044.17	939.76	0.006%
Fresno	2035	MH	GAS	65	1337	641.50	577.35	0.004%
Fresno	2035	MH	DSL	65	332	1059.66	953.69	0.001%
Fresno	2035	OBUS	GAS	5	301	2513.50	2262.15	0.001%
Fresno	2035	OBUS	DSL	5	246	3000.85	2700.76	0.001%

assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa (gms/mile)	Percent of Total VMT
Fresno	2035	OBUS	GAS	10	1513	2036.13	1832.52	0.004%
Fresno	2035	OBUS	DSL	10	1134	2416.38	2174.74	0.003%
Fresno	2035	OBUS	GAS	15	1911	1392.43	1253.19	0.005%
Fresno	2035	OBUS	DSL	15	1492	1966.46	1769.81	0.004%
Fresno	2035	OBUS	GAS	20	1982	1006.07	905.46	0.005%
Fresno	2035	OBUS	DSL	20	1992	1667.58	1500.82	0.005%
Fresno	2035	OBUS	GAS	25	2209	768.01	691.21	0.006%
Fresno	2035	OBUS	DSL	25	2067	1554.30	1398.87	0.005%
Fresno	2035	OBUS	GAS	30	2497	619.43	557.49	0.007%
Fresno	2035	OBUS	DSL	30	2883	1513.47	1362.13	0.008%
Fresno	2035	OBUS	GAS	35	3104	527.85	475.06	0.008%
Fresno	2035	OBUS	DSL	35	4257	1496.24	1346.62	0.011%
Fresno	2035	OBUS	GAS	40	3864	475.23	427.71	0.010%
Fresno	2035	OBUS	DSL	40	4544	1388.02	1249.22	0.012%
Fresno	2035	OBUS	GAS	45	3523	452.06	406.85	0.009%
Fresno	2035	OBUS	DSL	45	5085	1412.70	1271.43	0.013%
Fresno	2035	OBUS	GAS	50	3429	454.32	408.89	0.009%
Fresno	2035	OBUS	DSL	50	5431	1369.39	1232.45	0.014%
Fresno	2035	OBUS	GAS	55	4485	482.42	434.17	0.012%
Fresno	2035	OBUS	DSL	55	7117	1329.59	1196.63	0.019%
Fresno	2035	OBUS	GAS	60	5175	541.21	487.09	0.014%
Fresno	2035	OBUS	DSL	60	4814	1154.53	1039.08	0.013%
Fresno	2035	OBUS	GAS	65	809	641.50	577.35	0.002%
Fresno	2035	OBUS	DSL	65	1253	1334.35	1200.91	0.003%
Fresno	2035	SBUS	GAS	5	78	2513.50	2262.15	0.000%
Fresno	2035	SBUS	DSL	5	153	2617.43	2355.69	0.000%
Fresno	2035	SBUS	GAS	10	273	2036.13	1832.52	0.001%
Fresno	2035	SBUS	DSL	10	537	2162.21	1945.98	0.001%
Fresno	2035	SBUS	GAS	15	546	1392.43	1253.19	0.001%
Fresno	2035	SBUS	DSL	15	1074	1775.36	1597.82	0.003%
Fresno	2035	SBUS	GAS	20	741	1006.07	905.46	0.002%
Fresno	2035	SBUS	DSL	20	1458	1400.58	1260.52	0.004%
Fresno	2035	SBUS	GAS	25	1169	768.01	691.21	0.003%
Fresno	2035	SBUS	DSL	25	2302	1306.77	1176.10	0.006%
Fresno	2035	SBUS	GAS	30	1403	619.43	557.49	0.004%
Fresno	2035	SBUS	DSL	30	2762	1226.60	1103.94	0.007%
Fresno	2035	SBUS	GAS	35	1440	527.85	475.06	0.004%
Fresno	2035	SBUS	DSL	35	2835	1160.07	1044.07	0.007%
Fresno	2035	SBUS	GAS	40	972	475.23	427.71	0.003%
Fresno	2035	SBUS	DSL	40	1913	1107.18	996.46	0.005%
Fresno	2035	SBUS	GAS	45	466	452.06	406.85	0.001%
Fresno	2035	SBUS	DSL	45	918	1067.93	961.14	0.002%
Fresno	2035	SBUS	GAS	50	234	454.32	408.89	0.001%
Fresno	2035	SBUS	DSL	50	460	1042.31	938.08	0.001%
Fresno	2035	SBUS	GAS	55	348	482.42	434.17	0.001%
Fresno	2035	SBUS	DSL	55	684	1030.34	927.31	0.002%
Fresno	2035	SBUS	GAS	60	193	541.21	487.09	0.001%
Fresno	2035	SBUS	DSL	60	381	1032.00	928.80	0.001%
Fresno	2035	T6	GAS	5	974	2513.50	2262.15	0.003%
Fresno	2035	T6	DSL	5	5138	2559.93	2303.94	0.014%
Fresno	2035	T6	GAS	10	4894	2036.13	1832.52	0.013%

assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa) (gms/mile)	Percent of Total VMT
Fresno	2035	T6	DSL	10	25573	2114.70	1903.23	0.068%
Fresno	2035	T6	GAS	15	6182	1392.43	1253.19	0.016%
Fresno	2035	T6	DSL	15	34514	1736.36	1562.72	0.091%
Fresno	2035	T6	GAS	20	6412	1006.07	905.46	0.017%
Fresno	2035	T6	DSL	20	36603	1369.81	1232.83	0.097%
Fresno	2035	T6	GAS	25	7145	768.01	691.21	0.019%
Fresno	2035	T6	DSL	25	38121	1278.07	1150.26	0.101%
Fresno	2035	T6	GAS	30	8078	619.43	557.49	0.021%
Fresno	2035	T6	DSL	30	45837	1199.66	1079.69	0.121%
Fresno	2035	T6	GAS	35	10040	527.85	475.06	0.027%
Fresno	2035	T6	DSL	35	54048	1134.59	1021.13	0.143%
Fresno	2035	T6	GAS	40	12498	475.23	427.71	0.033%
Fresno	2035	T6	DSL	40	67093	1082.86	974.57	0.177%
Fresno	2035	T6	GAS	45	11398	452.06	406.85	0.030%
Fresno	2035	T6	DSL	45	54940	1044.47	940.02	0.145%
Fresno	2035	T6	GAS	50	11092	454.32	408.89	0.029%
Fresno	2035	T6	DSL	50	61487	1019.42	917.48	0.162%
Fresno	2035	T6	GAS	55	14508	482.42	434.17	0.038%
Fresno	2035	T6	DSL	55	90103	1007.70	906.93	0.238%
Fresno	2035	T6	GAS	60	16741	541.21	487.09	0.044%
Fresno	2035	T6	DSL	60	108274	1009.33	908.40	0.286%
Fresno	2035	T6	GAS	65	2616	641.50	577.35	0.007%
Fresno	2035	T6	DSL	65	17039	1024.30	921.87	0.045%
Fresno	2035	T7	GAS	5	47	2513.50	2262.15	0.000%
Fresno	2035	T7	DSL	5	11173	3956.49	3560.84	0.030%
Fresno	2035	T7	GAS	10	230	2036.13	1832.52	0.001%
Fresno	2035	T7	DSL	10	42683	3268.37	2941.53	0.113%
Fresno	2035	T7	GAS	15	251	1392.43	1253.19	0.001%
Fresno	2035	T7	DSL	15	52201	2683.61	2415.25	0.138%
Fresno	2035	T7	GAS	20	429	1006.07	905.46	0.001%
Fresno	2035	T7	DSL	20	128970	2117.10	1905.39	0.341%
Fresno	2035	T7	GAS	25	560	768.01	691.21	0.001%
Fresno	2035	T7	DSL	25	117904	1975.31	1777.78	0.311%
Fresno	2035	T7	GAS	30	1023	619.43	557.49	0.003%
Fresno	2035	T7	DSL	30	199056	1854.12	1668.71	0.526%
Fresno	2035	T7	GAS	35	1819	527.85	475.06	0.005%
Fresno	2035	T7	DSL	35	358106	1753.56	1578.20	0.946%
Fresno	2035	T7	GAS	40	1585	475.23	427.71	0.004%
Fresno	2035	T7	DSL	40	337948	1673.61	1506.25	0.893%
Fresno	2035	T7	GAS	45	1678	452.06	406.85	0.004%
Fresno	2035	T7	DSL	45	473149	1614.27	1452.85	1.250%
Fresno	2035	T7	GAS	50	1755	454.32	408.89	0.005%
Fresno	2035	T7	DSL	50	492063	1575.55	1418.00	1.300%
Fresno	2035	T7	GAS	55	2576	482.42	434.17	0.007%
Fresno	2035	T7	DSL	55	600041	1557.45	1401.71	1.585%
Fresno	2035	T7	GAS	60	636	541.21	487.09	0.002%
Fresno	2035	T7	DSL	60	182794	1559.97	1403.97	0.483%
Fresno	2035	T7	GAS	65	341	641.50	577.35	0.001%
Fresno	2035	T7	DSL	65	100120	1583.10	1424.79	0.264%
Fresno	2035	UBUS	GAS	5	191	2513.50	2262.15	0.001%
Fresno	2035	UBUS	DSL	5	471	2299.61	2069.65	0.001%

assumed to use the same emission rates.

Area	CalYr	Veh	Fuel	Speed (Miles/hr)	VMT (miles/day)	CO2_RUNEX (gms/mile)	CO2_RUNEX(Pa) (gms/mile)	Percent of Total VMT
Fresno	2035	UBUS	GAS	10	686	2036.13	1832.52	0.002%
Fresno	2035	UBUS	DSL	10	1691	2299.61	2069.65	0.004%
Fresno	2035	UBUS	GAS	15	1372	1392.43	1253.19	0.004%
Fresno	2035	UBUS	DSL	15	3383	2299.61	2069.65	0.009%
Fresno	2035	UBUS	GAS	20	1811	1006.07	905.46	0.005%
Fresno	2035	UBUS	DSL	20	4464	2299.61	2069.65	0.012%
Fresno	2035	UBUS	GAS	25	2727	768.01	691.21	0.007%
Fresno	2035	UBUS	DSL	25	6723	2299.61	2069.65	0.018%
Fresno	2035	UBUS	GAS	30	3414	619.43	557.49	0.009%
Fresno	2035	UBUS	DSL	30	8415	2299.61	2069.65	0.022%
Fresno	2035	UBUS	GAS	35	3345	527.85	475.06	0.009%
Fresno	2035	UBUS	DSL	35	8247	2299.61	2069.65	0.022%
Fresno	2035	UBUS	GAS	40	2412	475.23	427.71	0.006%
Fresno	2035	UBUS	DSL	40	5945	2299.61	2069.65	0.016%
Fresno	2035	UBUS	GAS	45	1051	452.06	406.85	0.003%
Fresno	2035	UBUS	DSL	45	2592	2299.61	2069.65	0.007%
Fresno	2035	UBUS	GAS	50	534	454.32	408.89	0.001%
Fresno	2035	UBUS	DSL	50	1317	2299.61	2069.65	0.003%
Fresno	2035	UBUS	GAS	55	662	482.42	434.17	0.002%
Fresno	2035	UBUS	DSL	55	1632	2299.61	2069.65	0.004%
Fresno	2035	UBUS	GAS	60	1084	541.21	487.09	0.003%
Fresno	2035	UBUS	DSL	60	2672	2299.61	2069.65	0.007%

Community Greenhouse Gas Inventory

Energy

Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Electricity

Emission Factors (lbs/kWh)

Carbon dioxide *	0.290
Methane	0.000031
Nitrous oxide	0.000011

	(kWh/year)	Per capita (kWh/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	2,531,700,000	2,610	367097	39.2	13.9	337,694
Commercial	2,950,179,600	7,503	427776	45.7	16.2	393,513
Industrial	0		0	0.0	0.0	0
Total	5,481,879,600		794,873	85.0	30.2	731,206

Natural Gas

Emission Factors (lbs/therm)

Carbon dioxide	11.7
Methane	0.001
Nitrous oxide	0.00002

	(therms/year)	Per capita (therms/person or employee/year)	Emissions (tons/year)			Emissions MTCO2e
			CO2	CH4	N2O	
Residential	133,860,000	138	783,081	73.6	1.5	712,228
Commercial	158,459,600	403	926,989	87.2	1.7	843,115
Industrial	0		0	0.0	0.0	0
Total	292,319,600		1,710,070	160.8	3.2	1,555,342

Notes and Sources:

*Used the 2020 emission factor.

- Emission factors for methane and nitrous oxide: California Air Resources Board (ARB). 2010. Local Government Operations Protocol. Version 1.1. (Electricity is from Table G.7 for 2005 and natural gas is from Table G.3 and converted)

- Emission factors for carbon dioxide from: PG&E 2013. Pacific Gas and Electric Company. ; PG&E. 2013. Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

- Residential per capita is based on the population; commercial per capita is based on the number of employees

- Per capita emission rates are from the year 2010 based on actual usage from PG&E. The electricity and natural gas usage for this year are calculated as the per capita rate multiplied by the projected population.

Community Greenhouse Gas Inventory

Offroad Equipment

Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

Agricultural Equipment

Location	Year 2035	Emissions (tons/year)			Emissions MTCO2e
	Population	CO2	CH4	N2O	
Fresno County	1,301,000	896	0.0329	0.0081	815
Fresno	780,600	537	0	0	489
Percent Fresno/Fresno County	60.0%				

Other Equipment

Location	Year 2035	Emissions (tons/year)			Emissions MTCO2e
	Population	CO2	CH4	N2O	
Fresno County	1,301,000	1,468	0.384	0.12457	1,375
Fresno	780,600	881	0	0	825
Percent Fresno/Fresno County	60.0%				

Total Fresno 1,314

Notes:

Emissions for Fresno County are from OFFROAD2007 for the year 2035; emissions from Fresno are apportioned based on population in 2035

The "other" category includes: recreational equipment (off-road vehicles, all terrain vehicles), construction and mining equipment, industrial equipment, lawn and garden equipment, light commercial equipment, logging equipment, recreational equipment, airport ground support equipment, transport refrigeration units, military tactical support equipment, railyard operations, pleasure craft (boats).

Community Greenhouse Gas Inventory Ozone Depleting Substance Substitutes

Year: 2056

Prepared by FirstCarbon Solutions

Note: data entry values are in yellow

California

2020 Emissions (MTCO ₂ e per person)*	0.89
--	------

Fresno

Population	970,000
Emissions (MTCO ₂ e per person)	863,300
(estimated by using 2020 California per person emissions)	

Sources/Notes:

* 2020 California per capita emissions rate.