Appendix B Air Quality & Greenhouse Gases Calculations

Land Use Statistics - City of Lodi & Sphere of Influence

	Existing Conditions 2020	Current GP 2045	Proposed GP 2045	Change from Existing 2020-2045	Change from Current GP 2020-2045
City Limit					
Housing Units	24,129	26,951	26,951	2,822	0
Population	62,735	70,073	70,073	7,338	0
Employment	24,844	28,366	28,118	3,274	-248
Service Population	87,579	98,439	98,191	10,612	-248
Non-Residential KSF	15,819	17,959	17,717	1,898	-242
City + Sphere of Influence (SOI)					
Housing Units	25,511	31,977	31,610	6,099	-367
Population	66,329	83,140	82,186	15,857	-954
Employment	25,401	30,537	30,120	4,719	-417
Service Population	91,730	113,677	112,306	20,576	-1371
Non-Residential KSF	16,291	19,198	18,882	2,591	-316
SOI (Excluding City Limit)					
Housing Units	1,382	5,026	4,659	3,277	-367
Population	3,593	13,068	12,113	8,520	-955
Employment	556	2,171	2,002	1,446	-169
Service Population	4,149	15,239	14,115	9,966	-1124
Non-Residential KSF	472	1,239	1,165	693	-74

Notes:

1. Based on Department of Finance 2022 and 2023 population and housing estimates, the population per housing unit ratio for City of Lodi is 2.60. This factor is used to develop the population data in the table. https://dof.ca.gov/forecasting/demographics/estimates-e1/
2. Housing Units and Non-Residential KSF is summarized using City of Lodi Travel Demand Model. Please note, hotel is counted as hotel rooms in the model land use input file, and the non-residential KSF doesn't include hotel KSF.
3. Employment is estimated based on employment per KSF, per student and per hotel room. The factors used to estimate total employment are consistent with City of Lodi SB 743 analysis.

AQMP Consistency Analysis

Comparison of the Change in Population and VMT in Lodi (O-D Method)

Category	Existing Conditions	Current GP	Proposed GP	Change from Existing Conditions		Change from Current GP	
				Change	Percent	Change	Percent
City + SOI							
Population	66,329	83,140	82,186	15,857	24%	-954	-1%
Employment	25,401	30,537	30,120	4,719	19%	-417	-1%
SP	91,730	113,677	112,306	20,576	22%	-1,371	-1%
VMT per Day	316,147	418,940	398,724	82,577	26%	-20,216	-5%
VMT/SP	3.45	3.69	3.55	0.10	3%	-0.14	-4%
City Limit							
Population	62,735	70,073	70,073	7,338	12%	0	0%
Employment	24,844	28,366	28,118	3,274	13%	-248	-1%
SP	87,579	98,439	98,191	10,612	12%	-248	0%
VMT per Day	284,278	347,992	334,407	50,130	18%	-13,585	-4%
VMT/SP	3.25	3.54	3.41	0.16	5%	-0.13	-4%
SOI Only							
Population	3,593	13,068	12,113	8,520	237%	-955	-7%
Employment	556	2,171	2,002	1,446	260%	-169	-8%
SP	4,149	15,239	14,115	9,966	240%	-1,124	-7%
VMT per Day	31,870	70,948	64,317	32,447	102%	-6,631	-9%
VMT/SP	7.68	4.66	4.56	-3.12	-41%	-0.10	-2%

Note: Origin-Destination (O-D) Methodology is not the same methodology for SB 743, which considers only commute-trip VMT. Modeling of vehicle miles traveled (VMT) provided by Fehr & Peers is based on San Joaquin Council of Governments Regional Travel Demand Model (SJCOG Model). VMT from passenger vehicles and trucks that have an origin or destination in the City using a transportation origin-destination methodology. Accounting of VMT is based on the recommendations of CARB's Regional Targets Advisory Committee (RTAC) created under Senate Bill 375 (SB 375).

City of Lodi Criteria Air Pollutant Emissions Inventory and Forecast: City + SOI

Notes:

[1] Source: Fehr&Peers, 2024; EMFAC2021 Version 1.0.2 Emissions Database (Sub-Area - San Joaquin Valley)

[2] Sources: PG&E and Lodi Electric 2024 and CalEEMod User's Guide for natural gas criteria air pollutant emission rates. Excludes criteria air pollutant emissions natural gas use from Permitted Sources within the City.

[3] Source: OFFROAD 2021 Version 1.0.7.

[4] Source: CalEEMod User's Guide

City + SOI

Existing Conditions (2020)

Phase	Existing Criteria Air Pollutant Emissions (lbs/day) - City + SOI						Existing Criteria Air Pollutant Emissions (tons/year)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	27	295	902	3	5	7	5	51	156	1	1	1
Energy[2]	25	442	267	3	35	35	5	81	49	1	6	6
Offroad Equipment[3]	480	1,537	7,052	2	87	79	88	281	1,287	0	16	14
Consumer Products[4]	1,026						187					
Total	**1,559**	**2,275**	**8,221**	**8**	**127**	**121**	**284**	**412**	**1,492**	**1**	**23**	**22**

Current GP (Approved Project)

Phase	Approved Project Criteria Air Pollutant Emissions (lbs/day) - City + SOI						Approved Project Criteria Air Pollutant Emissions (tons/year) - City + SOI					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	7,657	100	469	3	27	10	1,328	17	81	0	5	2
Energy[2]	31	540	323	3	43	43	6	98	59	1	8	8
Offroad Equipment[3]	528	1,495	8,209	2	84	76	96	273	1,498	0	15	14
Consumer Products[4]	1,365						249					
Total	**9,581**	**2,135**	**9,001**	**8**	**154**	**129**	**1,680**	**389**	**1,638**	**1**	**28**	**23**

Proposed GP (Proposed Project)

Phase	Project (2045) Criteria Air Pollutant Emissions (lbs/day) - City + SOI						Project (2045) Criteria Air Pollutant Emissions (tons/year)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	7,287	95	447	3	22	9	1,264	17	77	0	4	2
Energy[2]	30	532	318	3	42	42	6	97	58	1	8	8
Offroad Equipment[3]	524	1,493	8,121	2	84	76	96	272	1,482	0	15	14
Consumer Products[4]	1,346						246					
Total	**9,188**	**2,120**	**8,886**	**8**	**148**	**127**	**1,611**	**386**	**1,618**	**1**	**27**	**23**

NET CHANGE from Current GP

Phase	Net Change Criteria Air Pollutant Emissions (lbs/day) - City + SOI						Net Change Criteria Air Pollutant Emissions (tons/year) - City + SOI					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	-369	-5	-23	0	-5	-1	-64	-1	-4	0	-1	0
Energy[2]	0	-7	-5	0	-1	-1	0	-1	-1	0	0	0
Offroad Equipment[3]	-4	-2	-88	0	0	0	-1	0	-16	0	0	0
Consumer Products[4]	-19						-4					
Total	**-393**	**-14**	**-115**	**0**	**-6**	**-1**	**-68**	**-3**	**-21**	**0**	**-1**	**0**
SJVAPCD Threshold	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**10**	**10**	**100**	**27**	**15**	**15**
Exceeds Threshold	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**No**	**No**	**No**	**No**	**No**	**No**

Lodi Community GHG Emissions Inventory and Forecast

Category	Existing Conditions				Proposed GP				Net Change from Existing Conditions		Current GP				Net Change from Current GP	
	City	SOI	TOTAL	%	City	SOI	TOTAL	%	TOTAL	%	City	SOI	TOTAL	%	TOTAL	%
Building Electricity	89,991	3,460	93,451	28%	100,685	10,197	111,170	30%	17,719	19%	101,544	10,939	112,804	30%	-1,634	-1%
Building Natural Gas	86,930	3,784	90,714	27%	97,208	11,798	109,380	29%	18,665	21%	97,769	12,687	110,874	29%	-1,494	-1%
On-Road Transportation	47,456	5,320	52,776	16%	36,727	7,064	43,791	12%	-8,986	-17%	38,219	7,792	46,011	12%	-2,220	-5%
Off-Road Vehicles and Equipment	35,646	1,726	37,372	11%	33,244	3,500	36,744	10%	-628	-2%	33,123	3,696	36,818	10%	-74	0%
Solid Waste/Landfills	20,929	992	21,921	7%	23,465	3,373	26,838	7%	4,917	22%	23,524	3,642	27,166	7%	-328	-1%
Refrigerants	30,341	1,738	32,079	10%	33,890	5,858	39,748	11%	7,670	24%	33,890	6,320	40,210	11%	-462	-1%
Water Use	1,031	49	1,079	0%	1,161	167	1,328	0%	248	23%	1,164	180	1,344	0%	-16	-1%
Wastewater Treatment	1,453	69	1,522	0%	1,639	236	1,875	1%	353	23%	1,643	254	1,897	1%	-23	-1%
Total Community Emissions			**330,915**	100%			**370,873**	100%	**39,958**	**12%**			**377,124**	100%	**-6,251**	**-2%**
Service Population (SP)			91,730	NA			112,306	NA	20,576	22%			113,677	NA	-1,371	-1%
$MTCO_2e/SP$			3.6	NA			3.3	NA	-0.3	-8%			3.3	NA	0.0	0%
Trajectory to AB 1279			**49,637**	-85%		**Does not Achieve Target**										

Notes: Emissions may not total to 100 percent due to rounding. Based on GWPs in the IPCC Fifth Assessment Report (AR5).

The emissions inventory and forecast is based on activity data for the City of Lodi. This emissions inventory methodology identifies GHG emissions produced within a jurisdiction and captures direct and indirect emissions generated by land uses in a community. The activity data methodology allows a direct comparison between a community's GHG emissions and that identified by CARB in the AB 32 and SB 32 inventory and forecast prepared for the scoping plan. Unlike a "consumption-based" GHG emissions inventory, an activity-based emissions inventory does not capture lifecycle emissions associated with consumptions of goods. While a consumption-based emissions inventory approach may document GHG emissions associated with the final demand (regardless of where the were generated), a consumption-based emissions inventory excludes emissions associated with products produced within the jurisdiction but consumed elsewhere. For these reasons, an activity-based emissions inventory was determined to be most applicable for determining significant impacts under CEQA.

Excludes GHG emissions natural gas use from Permitted Sources within the City + SOI.

City vs SOI solid waste/landfills, water use, and wastewater treatment categories calculated proportionally based on service population.

Energy Data Requests to PG&E and Lodi Electric Utility

Weighted Average

PG&E	Total Usage (KWH) by Rate Category						
Rate of Category	**2018**	**2019**	**2020**	**2021**	**2022**	**Average (2019-2022)**	**PG&E Proportion**
Non-Residential (Commercial, Industrial and Agricultural)[1]	1,170	2,493	9,724	9,379	7,379	7,243.75	0.00
Residential	0	0	0	568,389	0	142,097.25	0.00
						Total PG&E Proportion	**0.00**

Source: Pacific Gas & Electric Company (PG&E). 2023, June 28. Community Wide GHG Inventory Report for Lodi (2005 to 2022). Request ID 1913129602.

Notes:

[1] Non-Residential category includes commercial, industrial and agricultural land uses. May inbclude permitted sources if there are major industries within the City.

LEU	Total Usage (KWH) by Rate Category						
Rate of Category	**2019**	**2020**	**2021**	**2022**	**2023**	**Average (2019-2022)**	**LEU Proportion**
Non-Residential (Commercial & Industrial)	260,382,000	260,308,000	279,999,000	287,074,000	274,640,000	271,940,750.00	1.00
Residential	152,737,000	169,283,000	165,998,000	167,427,000	161,350,000	163,861,250.00	1.00
Source: Lodi Electric Utility (LEU). 2024, May 1. Annual Electricity Usage Report.						**Total LEU Proportion**	**2.00**

PG&E Total Annual Usage (Therms)[1]						Average
Category	**2018**	**2019**	**2020**	**2021**	**2022**	**(2019-2022)**
Commercial	7,009,972	7,116,941	6,401,953	6,937,980	7,127,181	6,896,014
Residential	9,254,336	9,383,493	9,323,806	9,411,748	9,637,282	9,439,082
Total Therms	16,264,308	16,500,434	15,725,759	16,349,728	16,764,463	16,335,096

Source: Pacific Gas & Electric Company (PG&E). 2023, June 28. Community Wide GHG Inventory Report for Lodi (2005 to 2022). Request ID 1913129602.

Notes:

[1] May exclude natural gas use from Industrial (Permitted) Sources within the City.

City of Lodi Energy

PG&E Emission Factors

All Years	lbs/MMBTU	lbs/MMBTU	lbs/MMBTU	lbs/MMBTU
	CO_2	CH_4	N_2O	**CO_2e**
	117	0.0104	0.0002	**117.3**
All Years	**MT/Therm**	**MT/Therm**	**MT/Therm**	**MT/Therm**
	CO_2	CH_4	N_2O	**CO_2e**
	0.00531	4.72E-07	9.07E-09	**0.005**

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-4, Natural Gas Emissions Factors (pounds per MMBTU).

PG&E

	Intensity factor			CO_2e
	CO_2 lbs/MWH[1]	CH_4 lbs/MWH[2]	N_2O lbs/MWH[2]	lbs/MWh
2020	203.983	0.033	0.004	**206.0**
2045	203.983	0.033	0.004	**206.0**
	CO_2 MTons/MWH[1]	CH_4 MTons/MWH[2]	N_2O MTons/MWH[2]	MTons/MWh
2020	0.093	1.50E-05	1.81E-06	**0.093**
2045	0.093	1.50E-05	1.81E-06	**0.093**

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-3, Electricity Utility Greenhouse Gas Emissions Factors

Notes

In 2018, SB 100 (de León, 2018) was signed into law, which again increases the RPS to 60% by 2030 and encourages the state's electricity to come from carbon-free resources by 2050.

Lodi Electric Utility				Carbon Intensity
Year				**CO_2e**
	CO_2 lbs/MWH[1]	CH_4 lbs/MWH[2]	N_2O lbs/MWH[2]	lbs/MWh
2020	453.209	0.033	0.004	**455.193**
2045	453.209	0.033	0.004	**455.193**
	CO_2 MTons/MWH[1]	CH_4 MTons/MWH[2]	N_2O MTons/MWH[2]	MTons/MWh
2020	0.206	1.50E-05	1.81E-06	**0.206**
2045	0.206	1.50E-05	1.81E-06	**0.206**

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1.

Weighted Average				
Year	**Intensity factor**			**CO_2e**
	CO_2 lbs/MWH	CH_4 lbs/MWH	N_2O lbs/MWH	lbs/MWh
2020	453.098	0.033	0.004	455.082
2045	453.098	0.033	0.004	455.082
	CO_2 MTons/MWH	CH_4 MTons/MWH	N_2O MTons/MWH	MTons/MWh
2020	0.206	1.50E-05	1.81E-06	**0.206**
2045	0.206	1.50E-05	1.81E-06	**0.206**

Notes:

Weighted average calculated based on proportion of annual electricity usage data for PG&E vs LEU.

GHG Emissions from Energy Use

		PG&E and LEU	PG&E
Actual Energy Use		**MWH/YR**	**Therms**
City		**2020**	**2020**
Residential		164,003	9,439,082
Non-Residential		271,948	6,896,014
	Total	435,951	16,335,096
SOI			
Residential		8,885	511,341
Non-Residential		7,879	199,799
	Total	16,764	711,139
City + SOI			
Residential		172,888	9,950,423
Non-Residential		279,827	7,095,812
	Total	452,715	17,046,235

Notes

Estimated SOI energy usage based on service population.

Forecast Methodology	Existing Conditions	Proposed GP	Current GP
Residential - Dwelling Units			
City	24,129	26,951	26,951
SOI	1,382	4,659	5,026
City + SOI	25,511	31,610	31,977
Nonresidential - KSF			
City	15,819	17,717	17,959
SOI	472	1,165	1,239
City + SOI	16,291	18,882	19,198

City			
MWH per Housing Unit per year	6.80	Therms per Housing Unit per year	391
MWH per KSF per year	17.19	Therms per KSF per year	435.9
SOI			
MWH per Housing Unit per year	6.43	Therms per Housing Unit per year	370
MWH per KSF per year	16.69	Therms per KSF per year	423.3
City + SOI			
MWH per Housing Unit per year	6.78	Therms per Housing Unit per year	390
MWH per KSF per year	17.18	Therms per KSF per year	435.6

	Existing Conditions	Proposed GP	Current GP
Electricity		**MWH**	
City			
Nonresidential	271,948	304,577	308,737
Residential	164,003	183,184	183,184
Total	435,951	487,761	491,922
SOI			
Nonresidential	7,879	19,448	20,683
Residential	8,885	29,951	32,311
Total	16,764	49,399	52,994
City + SOI			
Nonresidential	279,827	324,332	329,760
Residential	172,888	214,221	216,708
Total	452,715	538,553	546,468

Electricity		**MTCO2e**	
City			
Nonresidential	56,137	62,872	63,731
Residential	33,854	37,814	37,814
Total Electricity	89,991	100,685	101,544
SOI			
Nonresidential	1,626	4,014	4,269
Residential	1,834	6,183	6,670
Total Electricity	3,460	10,197	10,939
City + SOI			
Nonresidential	57,763	66,950	68,070
Residential	35,688	44,220	44,734
Total Electricity	93,451	111,170	112,804

	Existing Conditions	Proposed GP	Current GP
Natural Gas		**Therms**	
City			
Nonresidential	6,896,014	7,723,413	7,828,909
Residential	9,439,082	10,543,027	10,543,027
Total	16,335,096	18,266,441	18,371,936
SOI			
Nonresidential	199,799	493,147	524,471
Residential	511,341	1,723,832	1,859,622
Total	711,139	2,216,979	2,384,094
City + SOI			
Nonresidential	7,095,812	8,224,365	8,362,004
Residential	9,950,423	12,329,304	12,472,450
Total	17,046,235	20,553,669	20,834,454
Natural Gas		**MTCO2e**	
City			
Nonresidential	36,698	41,101	41,663
Residential	50,232	56,106	56,106
Total Natural Gas	86,930	97,208	97,769
SOI			
Nonresidential	1,063	2,624	2,791
Residential	2,721	9,174	9,896
Total Natural Gas	3,784	11,798	12,687
City + SOI			
Nonresidential	37,761	43,767	44,500
Residential	52,953	65,612	66,374
Total Natural Gas	90,714	109,380	110,874

Notes

Forecasted emissions are based on the weighted carbon intensity.

Criteria Air Pollutants from Natural Gas

Rate	lbs/MBTU					
Natural Gas	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Residential	0.0054	0.0922	0.0392	0.0006	0.0075	0.0075
Non-Residential	0.0054	0.0980	0.0824	0.0006	0.0075	0.0075

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-4, Natural Gas Emissions Factors (pounds per MMBTU).

	Existing Conditions	Proposed GP	Current GP
City + SOI	Therms		
Residential	9,950,423	12,329,304	12,472,450
Nonresidential	7,095,812	8,224,365	8,362,004
Total	17,046,235	20,553,669	20,834,454

Residential (Units)	Percent	Percent	Percent
City	95%	85%	84%
SOI	5%	15%	16%
Non-Residential (Jobs)	Percent	Percent	Percent
City	98%	93%	93%
SOI	2%	7%	7%

City + SOI						
Natural Gas	**Existing Conditions lbs/day - City + SOI**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Residential	15	251	107	2	20	20
Nonresidential	10	191	160	1	14	14
TOTAL	25	442	267	3	35	35

Natural Gas	**Proposed GP lbs/day - City + SOI**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Residential	18	311	132	2	25	25
Nonresidential	12	221	186	1	17	17
TOTAL	30	532	318	3	42	42

Natural Gas	**Current GP lbs/day - City + SOI**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Residential	18	315	134	2	26	26
Nonresidential	12	225	189	1	17	17
TOTAL	31	540	323	3	43	43

City Only						
Natural Gas	**Existing Conditions lbs/day - City Only**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Residential	14	238	101	2	19	19
Nonresidential	10	186	157	1	14	14
TOTAL	24	424	258	3	34	34

Natural Gas	**Proposed GP lbs/day - City Only**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Residential	16	266	113	2	22	22
Nonresidential	11	206	173	1	16	16
TOTAL	27	472	286	3	37	37

Natural Gas	**Current GP lbs/day - City Only**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Residential	16	266	113	2	22	22
Nonresidential	11	209	175	1	16	16
TOTAL	27	474	288	3	37	37

SOI Only						
Natural Gas	**Existing Conditions lbs/day - SOI Only**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Residential	0.80	13.62	5.79	0.09	1.11	1.11
Nonresidential	0.23	4.17	3.51	0.03	0.32	0.32
TOTAL	1	18	9	0	1	1

Natural Gas	**Proposed GP lbs/day - SOI Only**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Residential	2.69	45.90	19.52	0.30	3.73	3.73
Nonresidential	0.81	14.68	12.34	0.09	1.12	1.12
TOTAL	3	61	32	0	5	5

Natural Gas	**Current GP lbs/day - SOI Only**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Residential	2.90	49.52	21.05	0.32	4.03	4.03
Nonresidential	0.88	15.96	13.42	0.10	1.21	1.21
TOTAL	4	65	34	0	5	5

Area Sources - Consumer Products

Residential Consumer Product Use

Emissions = EF x Building Area

EF = 2.14E-05 lbs/sqft/day

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Appendix D3 - Consumer Products Use.

AVERAGE HOUSING SQFT ASSUMPTIONS

Year Structure was Built	Percent of Housing Stock [a]	Average Square Feet of New Single Family Homes[b]	Average Square Feet (Weighted)
2020 or Later	0.60%	2,448	15
2010 to 2019	5.10%	2,524	129
2000 to 2009	9.90%	2,404	238
1990 to 1999	9.30%	2,116	197
1980 to 1989	18.50%	1,819	337
1979 or earlier	56.80%	1,699	965
Total	100%		1,880

Sources/Notes:

a. United States Census Bureau, Selected Housing Characteristics, City of Lodi, 2022. Table DP04. American Community Survey 5-Year Estimates, Year structure built.

https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2019/

b. United States Census Bureau, Characteristics of New Housing, Characteristics of New Single-Family Houses Completed, Median and Average Square Feet by Location. https://www.census.gov/construction/chars/completed.html

	Existing Conditions	Proposed GP	Current GP
		City + SOI	
Housing Units	25,511	31,610	31,977
Residential SQFT	47,959,021	62,886,324	63,784,556
lbs VOC per day	1,026	1,346	1,365
tons VOC per day	187	246	249

Area Sources

Source: OFFROAD2021 v.1.0.7, San Joaquin County, Year 2020. https://arb.ca.gov/emfac/offroad/emissions-inventory/09105e8817cdc5a696381fadad7a0c4909a8ab85

OFFROAD Estimate based on:

Agricultural Equipment	Based on the percentage of agricultural acreage within the City and SOI compared to the County of San Joaquin (San Joaquin County Crop Report 2020, Agricultural Commissioner/Sealer of Weights & Measures)
Construction Equipment	Based on the percentage of housing permits in Lodi and SOI compared to the San Joaquin County (HUD, year 2020)
Light Commercial and Industrial Equipment	Based on the percentage of employment in Lodi and SOI compared to San Joaquin County (US Census, year 2020)
Lawn & Garden	Based on the percentage of housing units in Lodi and SOI compared to San Joaquin County (US Census, year 2020)

Sources

Farmland Acreage

2020 San Joaquin County Crop Report: Story of Recovery and Resilience. https://www.sjgov.org/docs/default-source/agricultural-commissioner-documents/croprpt-archive/2020to2029/sjc_cr2020.pdf?sfvrsn=5dfb6910_3.

California Department of Conservation (DOC). 2004. A Guide to the Farmland Mapping and Monitoring Program, 2004 Edition. https://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/Archive/fmmp_guide_2004.pdf.

Table 3.3-5, Farmland Conversion with Proposed General Plan (Acres) of the 2009 EIR

	City + SOI	City	SOI	City Change from Existing Conditions	SOI Change from Existing Conditions
Existing Farmland acreage:	40,699	38857	1841		
Current GP Farmland acreage:	37,585	32547	5038	-16%	174%
Proposed GP Farmland acreage:	37,585	32861	4724	-15%	157%

Notes: Excluding Grazing Land, City vs SOI calculated based on Service Population

Construction (Housing Permits)

Source: Housing and Urban Development (HUD). 2023, Accessed January 10, 2024. SOCDS Building Permits Database. https://socds.huduser.gov/permits/

Housing Units

Source: U.S. Census Bureau. American Community Survey, Data Profiles, Accessed January 10, 2024. https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/

Employment

Source: U.S. Census Bureau. LED Extraction Tool, Accessed January 10, 2024. http://lehd.ces.census.gov/

Existing Conditions		**ROG Exhaust**	**NO_x Exhaust**	**CO Exhaust**	**SO_2 Exhaust**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust**	**CO_2**
City				**lbs/day**				**MT/yr**
Agricultural		148	863	843	1	50	46	19,337
Construction Equipment		67	480	557	1	28	25	11,783
Lawn & Garden		161	21	1,804	0	2	1	987
Light Commercial / Industrial Equipment		82	102	3,593	0	2	2	3,540
City TOTAL		458	1,466	6,797	2	83	75	35,646
SOI				**lbs/day**				**MT/yr**
Agricultural		7	41	40	0	2	2	916
Construction Equipment		4	27	32	0	2	1	675
Lawn & Garden		9	1	103	0	0	0	56
Light Commercial / Industrial Equipment		2	2	80	0	0	0	79
SOI TOTAL		22	72	255	0	4	4	1,726
City + SOI TOTAL		480	1,537	7,052	2	87	79	37,372

Proposed GP		**ROG Exhaust**	**NO_x Exhaust**	**CO Exhaust**	**SO_2 Exhaust**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust**	**CO_2**
City	**Forecast Adjusted for:**			**lbs/day**				**MT/yr**
Agricultural	Based on a reduction in Agricultural land in the City	125	730	713	1	43	39	16,353
Construction Equipment	Similar to historic	67	480	557	1	28	25	11,783
Lawn & Garden	Proportional to housing growth	179	23	2,015	0	2	2	1,102
Light Commercial / Industrial Equipment	Proportional to employment growth	93	116	4,066	0	3	2	4,006
City TOTAL		465	1,348	7,351	2	76	69	33,244
SOI	**Forecast Adjusted for:**			**lbs/day**				**MT/yr**
Agricultural	Based on a reduction in Agricultural land in the SOI	18	105	103	0	6	6	2351
Construction Equipment	Similar to historic	4	27	32	0	2	1	675
Lawn & Garden	Proportional to housing growth	31	4	346	0	0	0	189
Light Commercial / Industrial Equipment	Proportional to employment growth	7	8	290	0	0	0	285
SOI TOTAL		59	145	770	0	8	8	3,500
City + SOI TOTAL		524	1,493	8,121	2	84	76	36,744

Current GP		**ROG Exhaust**	**NO_x Exhaust**	**CO Exhaust**	**SO_2 Exhaust**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust**	**CO_2**
City	**Forecast Adjusted for:**			**lbs/day**				**MT/yr**
Agricultural	Based on a reduction in Agricultural land in the City	124	723	706	1	42	39	16196
Construction Equipment	Similar to historic	67	480	557	1	28	25	11,783
Lawn & Garden	Proportional to housing growth	179	23	2,015	0	2	2	1,102
Light Commercial / Industrial Equipment	Proportional to employment growth	94	117	4,102	0	3	2	4,041
City TOTAL		465	1,342	7,380	2	75	68	33,123
SOI	**Forecast Adjusted for:**			**lbs/day**				**MT/yr**
Agricultural	Based on a reduction in Agricultural land in the SOI	19	112	109	0	7	6	2507
Construction Equipment	Similar to historic	4	27	32	0	2	1	675
Lawn & Garden	Proportional to housing growth	33	4	373	0	0	0	204
Light Commercial / Industrial Equipment	Proportional to employment growth	7	9	314	0	0	0	309
SOI TOTAL		63	153	828	0	9	8	3,696
City + SOI TOTAL		528	1,495	8,209	2	84	76	36,818

San Joaquin County OFFROAD2021

Source: OFFROAD 2021 v.1.0.5. https://arb.ca.gov/emfac/offroad/emissions-inventory/09105e8817cdc5a696381fadad7a0c4909a8ab85

Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.7) Emissions Inventory
Region Type: County
Region: San Joaquin
Calendar Year: 2020
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Agriculture

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	Fuel Consumption (g/yr)	ROG_tpd	NOx_tpd	CO_tpd	SOx_tpd	PM10_tpd	PM2.5_tpd	CO2_tpd	CO2e_MTY
San Joaquin	2020	Agricultural - Agricultural Tractors	Aggregate	Aggregate	Gasoline	915.4106409	0.000123	0.000189	0.001892	2.54E-07	2.95E-06	2.71E-06	0.028246	9.35E+00
San Joaquin	2020	Agricultural - Agricultural Tractors	Aggregate	Aggregate	Diesel	13621941.84	0.47678	3.034512	2.332004	0.003819	0.180934	0.166459	418.7917	1.39E+05
San Joaquin	2020	Agricultural - ATVs	Aggregate	Aggregate	Gasoline	295850.9185	0.09126	0.042125	0.927396	8.09E-05	0.002883	0.002652	9.128672	3.02E+03
San Joaquin	2020	Agricultural - ATVs	Aggregate	Aggregate	Diesel	131853.301	0.005646	0.027057	0.029636	3.69E-05	0.001356	0.001247	4.053686	1.34E+03
San Joaquin	2020	Agricultural - ATVs	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Agricultural - Bale Wagons (Self Propelled)	Aggregate	Aggregate	Diesel	69750.12867	0.001999	0.018152	0.012539	1.96E-05	0.000858	0.000789	2.144391	7.10E+02
San Joaquin	2020	Agricultural - Balers (Self Propelled)	Aggregate	Aggregate	Diesel	2298.630909	8.43E-05	0.000622	0.000451	6.44E-07	3.47E-05	3.19E-05	0.070669	2.34E+01
San Joaquin	2020	Agricultural - Combine Harvesters	Aggregate	Aggregate	Diesel	499023.9892	0.010627	0.101332	0.071921	0.00014	0.00436	0.004011	15.34195	5.08E+03
San Joaquin	2020	Agricultural - Construction Equipment	Aggregate	Aggregate	Diesel	400703.5197	0.011886	0.105162	0.070573	0.000112	0.005098	0.00469	12.31919	4.08E+03
San Joaquin	2020	Agricultural - Cotton Pickers	Aggregate	Aggregate	Diesel	19062.48302	0.000392	0.003721	0.002824	5.35E-06	0.000157	0.000144	0.586055	1.94E+02
San Joaquin	2020	Agricultural - Forage & Silage Harvesters	Aggregate	Aggregate	Diesel	178107.7548	0.004291	0.042695	0.030067	5E-05	0.001778	0.001636	5.475728	1.81E+03
San Joaquin	2020	Agricultural - Forklifts	Aggregate	Aggregate	Diesel	338824.9835	0.01368	0.088524	0.069358	9.49E-05	0.00532	0.004895	10.4168	3.45E+03
San Joaquin	2020	Agricultural - Hay Squeeze/Stack Retriever	Aggregate	Aggregate	Diesel	56287.04554	0.001354	0.012152	0.007298	1.58E-05	0.00056	0.000515	1.730484	5.73E+02
San Joaquin	2020	Agricultural - Nut Harvester	Aggregate	Aggregate	Diesel	647561.3467	0.024279	0.169305	0.122341	0.000182	0.010334	0.009507	19.90857	6.59E+03
San Joaquin	2020	Agricultural - Other Harvesters	Aggregate	Aggregate	Diesel	508933.3273	0.014546	0.120994	0.086702	0.000143	0.006434	0.005919	15.6466	5.18E+03
San Joaquin	2020	Agricultural - Sprayers/Spray Rigs	Aggregate	Aggregate	Diesel	958773.5299	0.034624	0.260547	0.17952	0.000269	0.015416	0.014182	29.47644	9.76E+03
San Joaquin	2020	Agricultural - Swathers/Windrowers/Hay Conditioners	Aggregate	Aggregate	Diesel	160358.944	0.005483	0.038055	0.027626	4.5E-05	0.002266	0.002085	4.93006	1.63E+03
TOTAL AGRICULTURAL OFFROAD						17890247.15	0.70	4.07	3.97	0.01	0.24	0.22	550.05	1.82E+05
ESTIMATED Lodi (g/yr; tpd; MTY)						1899361.29	0.07	0.43	0.42	0.00	0.03	0.02	58.40	19,337
ESTIMATED Lodi (lbs/day)							148	863	843.426	1.1	50.5	46	116795	
ESTIMATED SOI (g/yr; tpd; MTY)						89981.05	0.00	0.02	0.02	0.00	0.00	0.00	2.77	916
ESTIMATED SOI (lbs/day)							7	41	39.957	0.1	2.4	2	5533	

AGRICULTURAL ACREAGE: https://www.sjgov.org/docs/default-source/agricultural-commissioner-documents/croprpt-archive/2020to2029/sjc_cr2020.pdf?sfvrsn=5dfb6910_3.	**Existing**
Farmland Acreage in San Joaquin County	366,000
Farmland Acreage in Lodi	38,857
Percent in the City	10.62%
Farmland Acreage in SOI	1,841
Percent in the SOI	0.50%

San Joaquin County OFFROAD2021

Source: OFFROAD 2021 v.1.0.5. https://arb.ca.gov/emfac/offroad/emissions-inventory/09105e8817cdc5a696381fadad7a0c4909a8ab85

Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.7) Emissions Inventory
Region Type: County
Region: San Joaquin
Calendar Year: 2020
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Construction and Mining

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	Fuel Consumption (g/yr)	ROG_tpd	NOx_tpd	CO_tpd	SOx_tpd	PM10_tpd	PM2.5_tpd	CO2_tpd	CO2e_MTY
San Joaquin	2020	Construction and Mining - Bore/Drill Rigs	Aggregate	Aggregate	Diesel	219949.9356	0.006437	0.052765	0.028237	6.41E-05	0.002783	0.00256	6.768695	2.24E+03
San Joaquin	2020	Construction and Mining - Bucket	Aggregate	Aggregate	Diesel	5444.947205	9.17E-05	0.000625	0.000599	1.59E-06	3.57E-05	3.28E-05	0.167562	5.55E+01
San Joaquin	2020	Construction and Mining - Compactor	Aggregate	Aggregate	Diesel	8800.596699	0.000116	0.000984	0.001099	2.57E-06	3.96E-05	3.64E-05	0.270828	8.97E+01
San Joaquin	2020	Construction and Mining - Concrete Mixer	Aggregate	Aggregate	Diesel	805.8465433	1.06E-05	0.000107	9.22E-05	2.35E-07	3.5E-06	3.22E-06	0.024799	8.21E+00
San Joaquin	2020	Construction and Mining - Concrete Pump	Aggregate	Aggregate	Diesel	8034.056556	0.000154	0.001386	0.000993	2.34E-06	5.44E-05	5.01E-05	0.247238	8.19E+01
San Joaquin	2020	Construction and Mining - Crane less than 35ton	Aggregate	Aggregate	Diesel	3912.562383	9.28E-05	0.000882	0.000684	1.14E-06	4.79E-05	4.41E-05	0.120404	3.99E+01
San Joaquin	2020	Construction and Mining - Cranes	Aggregate	Aggregate	Diesel	185206.2474	0.004869	0.045658	0.025503	5.4E-05	0.002491	0.002292	5.6995	1.89E+03
San Joaquin	2020	Construction and Mining - Crawler Tractors	Aggregate	Aggregate	Diesel	565800.6317	0.015841	0.133175	0.078114	0.000165	0.007489	0.00689	17.41184	5.77E+03
San Joaquin	2020	Construction and Mining - Crushing/Processing Equipment	Aggregate	Aggregate	Diesel	32448.7285	0.000253	0.001897	0.002775	9.46E-06	7.94E-05	7.31E-05	0.998571	3.31E+02
San Joaquin	2020	Construction and Mining - Excavators	Aggregate	Aggregate	Diesel	1851662.965	0.03597	0.286277	0.225445	0.00054	0.013603	0.012515	56.98271	1.89E+04
San Joaquin	2020	Construction and Mining - Graders	Aggregate	Aggregate	Diesel	257074.4777	0.007161	0.061623	0.027307	7.49E-05	0.003474	0.003196	7.911159	2.62E+03
San Joaquin	2020	Construction and Mining - Hopper Tractor Trailer	Aggregate	Aggregate	Diesel	546.6119972	3.6E-06	1.79E-05	3.2E-05	1.59E-07	9.16E-07	8.43E-07	0.016821	5.57E+00
San Joaquin	2020	Construction and Mining - Misc - Asphalt Pavers	Aggregate	Aggregate	Gasoline	2257.131334	0.00036	0.000316	0.013362	5.69E-07	0.000124	9.4E-05	0.037613	1.25E+01
San Joaquin	2020	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	Aggregate	Gasoline	1496.448593	0.000102	0.000158	0.003785	3.72E-07	3.57E-05	2.7E-05	0.033276	1.10E+01
San Joaquin	2020	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	Aggregate	Diesel	9.410536661	3.04E-05	0.000192	0.000111	2.75E-09	6.48E-06	4.9E-06	0.000289	9.58E-02
San Joaquin	2020	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	Aggregate	Gasoline	7987.460366	0.004543	0.002517	0.126289	2.09E-06	0.00115	0.000869	4.78E-06	1.58E-03
San Joaquin	2020	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	Aggregate	Diesel	13.82708012	3.74E-05	0.000233	0.000181	4.03E-09	8.33E-06	6.29E-06	0.000425	1.41E-01
San Joaquin	2020	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Gasoline	10338.88889	0.003404	0.002427	0.111505	2.67E-06	0.00131	0.000989	0.088815	2.94E+01
San Joaquin	2020	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Diesel	534.4367953	2.38E-05	0.000151	0.000146	2.08E-07	7.09E-06	6.34E-06	0.016431	5.44E+00
San Joaquin	2020	Construction and Mining - Misc - Cranes	Aggregate	Aggregate	Gasoline	1251.95	4.17E-05	0.000112	0.001966	3E-07	2.06E-06	1.56E-06	0.02958	9.79E+00
San Joaquin	2020	Construction and Mining - Misc - Crushing/Proc. Equipment	Aggregate	Aggregate	Gasoline	51.34840476	2.4E-05	1.63E-05	0.000823	1.31E-08	1.02E-05	7.7E-06	3.15E-08	1.04E-05
San Joaquin	2020	Construction and Mining - Misc - Dumpers/Tenders	Aggregate	Aggregate	Gasoline	822.73595	0.000478	0.000295	0.01192	2.15E-07	0.000128	9.64E-05	0.001923	6.37E-01
San Joaquin	2020	Construction and Mining - Misc - Dumpers/Tenders	Aggregate	Aggregate	Diesel	1.105445512	3.72E-06	2.35E-05	1.27E-05	3.23E-10	8.03E-07	6.07E-07	3.4E-05	1.13E-02
San Joaquin	2020	Construction and Mining - Misc - Excavators	Aggregate	Aggregate	Diesel	7.92515596	2.67E-05	0.000169	9.1E-05	2.31E-09	5.67E-06	4.28E-06	0.000244	8.07E-02
San Joaquin	2020	Construction and Mining - Misc - Other	Aggregate	Aggregate	Gasoline	1898	1.7E-05	6.07E-05	0.00157	4.72E-07	3.4E-06	2.57E-06	0.047485	1.57E+01
San Joaquin	2020	Construction and Mining - Misc - Other	Aggregate	Aggregate	Diesel	29.35188999	7.85E-05	0.000492	0.000386	8.56E-09	1.72E-05	1.3E-05	0.000902	2.99E-01
San Joaquin	2020	Construction and Mining - Misc - Pavers	Aggregate	Aggregate	Diesel	2.079623046	7E-06	4.43E-05	2.39E-05	6.07E-10	1.53E-06	1.16E-06	6.39E-05	2.12E-02
San Joaquin	2020	Construction and Mining - Misc - Paving Equipment	Aggregate	Aggregate	Gasoline	14746.11601	0.007272	0.004906	0.213578	3.8E-06	0.002262	0.001709	0.0339	1.12E+01
San Joaquin	2020	Construction and Mining - Misc - Paving Equipment	Aggregate	Aggregate	Diesel	3.54294592	1.19E-05	7.53E-05	4.07E-05	1.03E-09	2.53E-06	1.91E-06	0.000109	3.61E-02
San Joaquin	2020	Construction and Mining - Misc - Plate Compactors	Aggregate	Aggregate	Gasoline	5293.713834	0.003009	0.001893	0.083704	1.37E-06	0.000766	0.000578	3.26E-06	1.08E-03
San Joaquin	2020	Construction and Mining - Misc - Plate Compactors	Aggregate	Aggregate	Diesel	9.910701963	2.54E-05	0.000159	0.000133	2.89E-09	5.59E-06	4.22E-06	0.000305	1.01E-01
San Joaquin	2020	Construction and Mining - Misc - Rollers	Aggregate	Aggregate	Gasoline	7481.649976	0.001609	0.001394	0.055218	1.82E-06	0.000551	0.000416	0.106773	3.54E+01
San Joaquin	2020	Construction and Mining - Misc - Rollers	Aggregate	Aggregate	Diesel	60.82758454	0.000176	0.001106	0.000769	1.77E-08	3.81E-05	2.88E-05	0.00187	6.19E-01
San Joaquin	2020	Construction and Mining - Misc - Rough Terrain Forklifts	Aggregate	Aggregate	Gasoline	8745.4	0.000266	0.000811	0.0107	2.09E-06	1.49E-05	1.13E-05	0.214107	7.09E+01
San Joaquin	2020	Construction and Mining - Misc - Rubber Tired Loaders	Aggregate	Aggregate	Gasoline	4628.2	0.000151	0.000401	0.006652	1.1E-06	7.76E-06	5.86E-06	0.111414	3.69E+01
San Joaquin	2020	Construction and Mining - Misc - Rubber Tired Loaders	Aggregate	Aggregate	Diesel	1.304286035	4.39E-06	2.77E-05	1.5E-05	3.81E-10	9.33E-07	7.05E-07	4.01E-05	1.33E-02
San Joaquin	2020	Construction and Mining - Misc - Signal Boards	Aggregate	Aggregate	Gasoline	149.8615567	7.23E-05	5.18E-05	0.002398	3.83E-08	2.95E-05	2.23E-05	9.44E-08	3.13E-05
San Joaquin	2020	Construction and Mining - Misc - Signal Boards	Aggregate	Aggregate	Diesel	392.1267048	0.000405	0.002535	0.002136	1.37E-07	8.99E-05	6.84E-05	0.012056	3.99E+00
San Joaquin	2020	Construction and Mining - Misc - Skid Steer Loaders	Aggregate	Aggregate	Gasoline	16658.81814	0.002406	0.001848	0.081122	4.31E-06	0.000806	0.000609	0.305797	1.01E+02
San Joaquin	2020	Construction and Mining - Misc - Skid Steer Loaders	Aggregate	Aggregate	Diesel	415.3600357	0.001405	0.008827	0.004755	1.21E-07	0.00031	0.000234	0.01277	4.23E+00
San Joaquin	2020	Construction and Mining - Misc - Surfacing Equipment	Aggregate	Aggregate	Gasoline	6427.120975	0.003913	0.002747	0.101053	1.65E-06	0.001192	0.000901	3.97E-06	1.31E-03
San Joaquin	2020	Construction and Mining - Misc - Tampers/Rammers	Aggregate	Aggregate	Gasoline	868.6804802	0.000365	0.000278	0.014018	2.27E-07	0.0002	0.000151	6.17E-07	2.04E-04
San Joaquin	2020	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Gasoline	2982.05	5.86E-05	0.000163	0.004135	6.95E-07	5.02E-06	3.79E-06	0.071968	2.38E+01
San Joaquin	2020	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	37.84121263	0.000127	0.000805	0.000435	1.1E-08	2.73E-05	2.06E-05	0.001163	3.85E-01
San Joaquin	2020	Construction and Mining - Misc - Trenchers	Aggregate	Aggregate	Gasoline	13873.84438	0.00292	0.002463	0.103028	3.49E-06	0.001027	0.000776	0.196058	6.49E+01
San Joaquin	2020	Construction and Mining - Misc - Trenchers	Aggregate	Aggregate	Diesel	51.02415604	0.00016	0.001011	0.000614	1.49E-08	3.43E-05	2.59E-05	0.001569	5.19E-01
San Joaquin	2020	Construction and Mining - Nurse Rig Other	Aggregate	Aggregate	Diesel	48.40212802	1.24E-06	9.38E-06	9.93E-06	1.41E-08	8.55E-07	7.87E-07	0.00149	4.93E-01

San Joaquin County OFFROAD2021

Source: OFFROAD 2021 v.1.0.5. https://arb.ca.gov/emfac/offroad/emissions-inventory/09105e8817cdc5a696381fadad7a0c4909a8ab85

Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.7) Emissions Inventory
Region Type: County
Region: San Joaquin
Calendar Year: 2020
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

San Joaquin	2020	Construction and Mining - Off-Highway Tractors	Aggregate	Aggregate	Diesel	327776.1352	0.009754	0.058661	0.05048	9.56E-05	0.003668	0.003375	10.08692	3.34E+03
San Joaquin	2020	Construction and Mining - Off-Highway Trucks	Aggregate	Aggregate	Diesel	774183.907	0.018028	0.154261	0.074391	0.000226	0.007243	0.006663	23.82458	7.89E+03
San Joaquin	2020	Construction and Mining - Other Construction Equipment	Aggregate	Aggregate	Diesel	366713.08	0.009519	0.080646	0.049556	0.000107	0.004317	0.003972	11.28515	3.74E+03
San Joaquin	2020	Construction and Mining - Other Material Handling Equipment	Aggregate	Aggregate	Diesel	116179.8887	0.002433	0.020225	0.012884	3.39E-05	0.001046	0.000962	3.575297	1.18E+03
San Joaquin	2020	Construction and Mining - Pavers	Aggregate	Aggregate	Diesel	117837.9379	0.002938	0.021508	0.01564	3.44E-05	0.001171	0.001077	3.626321	1.20E+03
San Joaquin	2020	Construction and Mining - Paving Equipment	Aggregate	Aggregate	Diesel	131935.7686	0.002416	0.018037	0.015948	3.85E-05	0.000958	0.000882	4.060165	1.34E+03
San Joaquin	2020	Construction and Mining - Rollers	Aggregate	Aggregate	Diesel	306756.9954	0.01021	0.064578	0.059597	8.94E-05	0.003906	0.003593	9.440078	3.13E+03
San Joaquin	2020	Construction and Mining - Rough Terrain Forklifts	Aggregate	Aggregate	Diesel	388209.9969	0.006908	0.060767	0.070701	0.000113	0.00279	0.002566	11.9467	3.96E+03
San Joaquin	2020	Construction and Mining - Rubber Tired Dozers	Aggregate	Aggregate	Diesel	67787.30726	0.003095	0.025191	0.018464	1.98E-05	0.001583	0.001456	2.086073	6.91E+02
San Joaquin	2020	Construction and Mining - Rubber Tired Loaders	Aggregate	Aggregate	Diesel	1331894.983	0.031785	0.248595	0.154617	0.000388	0.013336	0.012269	40.98747	1.36E+04
San Joaquin	2020	Construction and Mining - Scrapers	Aggregate	Aggregate	Diesel	663697.9823	0.030541	0.277182	0.189167	0.000193	0.016228	0.01493	20.42451	6.76E+03
San Joaquin	2020	Construction and Mining - Skid Steer Loaders	Aggregate	Aggregate	Diesel	646897.8977	0.014793	0.11486	0.120975	0.000189	0.005559	0.005115	19.90751	6.59E+03
San Joaquin	2020	Construction and Mining - Spray Truck	Aggregate	Aggregate	Diesel	7835.333161	0.000176	0.001306	0.001176	2.28E-06	7.99E-05	7.35E-05	0.241123	7.98E+01
San Joaquin	2020	Construction and Mining - Spreader Tractor Trailer	Aggregate	Aggregate	Diesel	964.6518179	2.08E-05	0.000178	7.06E-05	2.81E-07	6.82E-06	6.27E-06	0.029686	9.83E+00
San Joaquin	2020	Construction and Mining - Spreader Truck	Aggregate	Aggregate	Diesel	6123.461775	9.52E-05	0.000658	0.00065	1.79E-06	3.9E-05	3.59E-05	0.188442	6.24E+01
San Joaquin	2020	Construction and Mining - Surfacing Equipment	Aggregate	Aggregate	Diesel	62130.54279	0.001323	0.010739	0.006415	1.81E-05	0.000561	0.000517	1.911993	6.33E+02
San Joaquin	2020	Construction and Mining - Tank Truck	Aggregate	Aggregate	Diesel	13588.66561	0.00021	0.00151	0.000925	3.96E-06	7.09E-05	6.52E-05	0.418175	1.38E+02
San Joaquin	2020	Construction and Mining - Tanker Truck Trailer	Aggregate	Aggregate	Diesel	1051.134968	1.69E-05	9.62E-05	0.000142	3.06E-07	4.65E-06	4.28E-06	0.032347	1.07E+01
San Joaquin	2020	Construction and Mining - Telescopic Handler	Aggregate	Aggregate	Diesel	27420.79304	0.00026	0.003152	0.004445	7.99E-06	9.75E-05	8.97E-05	0.843842	2.79E+02
San Joaquin	2020	Construction and Mining - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	1780090.952	0.051706	0.351639	0.307106	0.000519	0.022267	0.020485	54.78016	1.81E+04
San Joaquin	2020	Construction and Mining - Trenchers	Aggregate	Aggregate	Diesel	60036.73413	0.002611	0.016019	0.010714	1.75E-05	0.001046	0.000963	1.847558	6.12E+02
San Joaquin	2020	Construction and Mining - Vacuum Truck	Aggregate	Aggregate	Diesel	20004.79982	0.000465	0.003678	0.002206	5.83E-06	0.000178	0.000164	0.615624	2.04E+02
San Joaquin	2020	Construction and Mining - Water Truck	Aggregate	Aggregate	Diesel	58864.8838	0.001479	0.012091	0.005776	1.72E-05	0.000636	0.000585	1.811496	6.00E+02
TOTAL CONSTRUCTION OFFROAD						1.05E+07	3.05E-01	2.17E+00	2.52E+00	3.06E-03	1.27E-01	1.15E-01	3.22E+02	1.07E+05
ESTIMATED Lodi (g/yr; tpd; MTY)						1,163,646	3.37E-02	2.40E-01	2.79E-01	3.39E-04	1.40E-02	1.27E-02	3.56E+01	11,783
ESTIMATED Lodi (lbs/day)							67	480	557	1	28	25		
ESTIMATED SOI (g/yr; tpd; MTY)						66,648	1.93E-03	1.37E-02	1.60E-02	1.94E-05	8.05E-04	7.30E-04	2.04E+00	675
ESTIMATED SOI (lbs/day)							4	27	32	0	2	1		

TOTAL HOUSING PERMITS: https://socds.huduser.gov/permits/

	2016	2017	2018	2019	2020	Average
San Joaquin County	1,998	2,779	3,280	3,499	3,914	3,094
Housing permits in Lodi	269	449	247	403	423	342
Percent in the City	13.5%	16.2%	7.5%	11.5%	10.8%	11.1%
Housing permits in SOI						20
Percent in the SOI						0.6%

City of Lodi Housing Units:	24,129	housing units
SOI Area Housing Units:	1,382	housing units
Ratio of SOI Housing Units to City of Lodi Housing Units:	5.73%	

San Joaquin County OFFROAD2021

Source: OFFROAD 2021 v.1.0.5. https://arb.ca.gov/emfac/offroad/emissions-inventory/09105e8817cdc5a696381fadad7a0c4909a8ab85

Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.7) Emissions Inventory
Region Type: County
Region: San Joaquin
Calendar Year: 2020
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Lawn and Garden

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	Fuel Consumption (g/yr)	ROG_tpd	NOx_tpd	CO_tpd	SOx_tpd	PM10_tpd	PM2.5_tpd	CO2_tpd	CO2e_MTY
San Joaquin	2020	Lawn and Garden - Misc - Chainsaws	Aggregate	Aggregate	Gasoline	127191.7982	0.144465	0.004609	0.427303	3.26E-05	0.001852	0.0014	2.239182	7.41E+02
San Joaquin	2020	Lawn and Garden - Misc - Chainsaws	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Lawn and Garden - Misc - Chainsaws Preempt	Aggregate	Aggregate	Gasoline	74866.58536	0.12731	0.004377	0.2301	1.92E-05	0.000997	0.000753	1.20574	3.99E+02
San Joaquin	2020	Lawn and Garden - Misc - Chainsaws Preempt	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Lawn and Garden - Misc - Chippers/Stump Grinders	Aggregate	Aggregate	Gasoline	1330.916792	0.000194	7.15E-05	0.009066	3.47E-07	6.81E-07	5.13E-07	0.020786	6.88E+00
San Joaquin	2020	Lawn and Garden - Misc - Chippers/Stump Grinders	Aggregate	Aggregate	Diesel	79.93228526	2.94E-06	1.86E-05	0.00001	2.33E-08	6.25E-07	4.72E-07	0.002457	8.14E-01
San Joaquin	2020	Lawn and Garden - Misc - Chippers/Stump Grinders	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Lawn and Garden - Misc - Lawn Mowers	Aggregate	Aggregate	Gasoline	306343.95	0.043744	0.024203	1.834297	8.32E-05	0.001107	0.000836	5.179822	1.72E+03
San Joaquin	2020	Lawn and Garden - Misc - Lawn Mowers	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Lawn and Garden - Misc - Leaf Blowers/Vacuums	Aggregate	Aggregate	Gasoline	331698.4098	0.241782	0.008377	1.204368	8.44E-05	0.003553	0.002684	6.165444	2.04E+03
San Joaquin	2020	Lawn and Garden - Misc - Leaf Blowers/Vacuums	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Lawn and Garden - Misc - Other	Aggregate	Aggregate	Gasoline	6400.042843	0.000774	0.000319	0.0421	1.66E-06	3.32E-06	2.51E-06	0.102651	3.40E+01
San Joaquin	2020	Lawn and Garden - Misc - Other	Aggregate	Aggregate	Diesel	39.93361283	1.29E-06	8.92E-06	7.11E-06	1.17E-08	3.12E-07	2.35E-07	0.001228	4.07E-01
San Joaquin	2020	Lawn and Garden - Misc - Rear Engine Riding Mowers	Aggregate	Aggregate	Gasoline	561373.3663	0.084597	0.041278	4.003773	0.000144	0.000541	0.000409	8.467009	2.80E+03
San Joaquin	2020	Lawn and Garden - Misc - Rear Engine Riding Mowers	Aggregate	Aggregate	Diesel	32096.38912	0.001135	0.007377	0.004574	9.36E-06	0.000252	0.00019	0.986768	3.27E+02
San Joaquin	2020	Lawn and Garden - Misc - Rear Engine Riding Mowers	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Lawn and Garden - Misc - Snowblowers	Aggregate	Aggregate	Gasoline	3857.347343	0.000479	0.000236	0.029154	1.04E-06	2.41E-06	1.82E-06	0.055939	1.85E+01
San Joaquin	2020	Lawn and Garden - Misc - Snowblowers	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Lawn and Garden - Misc - Tillers	Aggregate	Aggregate	Gasoline	5924.586896	0.00187	0.000303	0.034237	1.6E-06	5.29E-06	3.99E-06	0.09871	3.27E+01
San Joaquin	2020	Lawn and Garden - Misc - Tillers	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Lawn and Garden - Misc - Trimmers/Edgers/Brush Cutters	Aggregate	Aggregate	Gasoline	249089.0931	0.154584	0.009317	0.92872	6.38E-05	0.001356	0.001025	4.685147	1.55E+03
San Joaquin	2020	Lawn and Garden - Misc - Trimmers/Edgers/Brush Cutters	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Lawn and Garden - Misc - Wood Splitters	Aggregate	Aggregate	Gasoline	54422.62357	0.009181	0.003899	0.355482	1.42E-05	5.45E-05	4.12E-05	0.868753	2.88E+02
TOTAL LAWN & GARDEN						1.75E+06	8.10E-01	1.04E-01	9.10E+00	4.56E-04	9.73E-03	7.35E-03	3.01E+01	9.96E+03
ESTIMATED Lodi (g/yr; tpd; MTY)						173,860	8.03E-02	1.03E-02	9.02E-01	4.51E-05	9.64E-04	7.28E-04	2.98E+00	987
ESTIMATED Lodi (lbs/day)							161	21	1,804	0	2	1	5,961	
ESTIMATED SOI (g/yr; tpd; MTY)						9,890	4.57E-03	5.88E-04	5.13E-02	2.57E-06	5.48E-05	4.14E-05	1.70E-01	56
ESTIMATED SOI (lbs/day)							9	1	103	0	0	0	339	

HOUSING UNITS https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/		Existing
Housing Units in San Joaquin County (2020)		245,192
Housing Units in Lodi		24,294
Percent in the City		9.9%
Housing Units in SOI		1,382
Percent in the SOI		0.6%

San Joaquin County OFFROAD2021

Source: OFFROAD 2021 v.1.0.5. https://arb.ca.gov/emfac/offroad/emissions-inventory/09105e8817cdc5a696381fadad7a0c4909a8ab85

Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.7) Emissions Inventory
Region Type: County
Region: San Joaquin
Calendar Year: 2020
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Light Commercial and Industrial

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	Fuel Consumption (g/yr)	ROG_tpd	NOx_tpd	CO_tpd	SOx_tpd	PM10_tpd	PM2.5_tpd	CO2_tpd	CO2e_MTY
San Joaquin	2020	Light Commercial - Misc - Air Compressors	Aggregate	Aggregate	Gasoline	485026.6201	0.05852	0.035913	3.295102	0.000123	0.000223	0.000253	7.605889	2.52E+03
San Joaquin	2020	Light Commercial - Misc - Air Compressors	Aggregate	Aggregate	Diesel	12268.83948	0.000543	0.002856	0.003178	4.6E-06	0.000158	0.00015	0.377192	1.25E+02
San Joaquin	2020	Light Commercial - Misc - Air Compressors	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Light Commercial - Misc - Gas Compressors	Aggregate	Aggregate	Nat Gas	150405.55	0	0.008581	0.100477	0	0	0	2.739033	9.07E+02
San Joaquin	2020	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Gasoline	788506.5408	0.173636	0.065321	4.853844	0.000205	0.00063	0.000763	12.88348	4.27E+03
San Joaquin	2020	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Diesel	64460.6811	0.002204	0.014834	0.011819	2.17E-05	0.000587	0.000649	1.981773	6.56E+02
San Joaquin	2020	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Nat Gas	4828.95	0	0.000339	0.002511	0	0	0	0.089339	2.96E+01
San Joaquin	2020	Light Commercial - Misc - Pressure Washers	Aggregate	Aggregate	Gasoline	343701.7326	0.043273	0.018963	2.44108	8.78E-05	0.000113	0.000149	5.229381	1.73E+03
San Joaquin	2020	Light Commercial - Misc - Pressure Washers	Aggregate	Aggregate	Diesel	331.1292927	1.01E-05	7.66E-05	5.98E-05	1.12E-07	2.78E-06	3.17E-06	0.01018	3.37E+00
San Joaquin	2020	Light Commercial - Misc - Pressure Washers	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Light Commercial - Misc - Pumps	Aggregate	Aggregate	Gasoline	101822.4817	0.012712	0.006607	0.483815	2.6E-05	8.93E-05	8.49E-05	1.911991	6.33E+02
San Joaquin	2020	Light Commercial - Misc - Pumps	Aggregate	Aggregate	Diesel	35276.6695	0.001307	0.008145	0.00684	1.2E-05	0.000339	0.000369	1.084543	3.59E+02
San Joaquin	2020	Light Commercial - Misc - Pumps	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Light Commercial - Misc - Welders	Aggregate	Aggregate	Gasoline	213738.1787	0.028859	0.014078	1.414271	5.47E-05	0.000152	0.000164	3.392488	1.12E+03
San Joaquin	2020	Light Commercial - Misc - Welders	Aggregate	Aggregate	Diesel	65804.93259	0.002737	0.015193	0.015288	2.39E-05	0.000772	0.00076	2.023101	6.70E+02
San Joaquin	2020	Light Commercial - Misc - Welders	Aggregate	Aggregate	Electric	0	0	0	0	0	0	0	0	0.00E+00
San Joaquin	2020	Industrial - Aerial Lifts	Aggregate	Aggregate	Diesel	38792.05029	0.000639	0.006781	0.006987	1.13E-05	0.000276	0.000254	1.193779	3.95E+02
San Joaquin	2020	Industrial - Boom	Aggregate	Aggregate	Diesel	39273.19975	0.000526	0.00633	0.007063	1.14E-05	0.000175	0.000161	1.208586	4.00E+02
San Joaquin	2020	Industrial - Forklifts	Aggregate	Aggregate	Diesel	170906.284	0.004034	0.031662	0.031389	4.98E-05	0.001705	0.001569	5.259436	1.74E+03
San Joaquin	2020	Industrial - Garbage Refuse	Aggregate	Aggregate	Diesel	1877.700267	2.08E-05	0.000171	0.000119	5.47E-07	6.53E-06	6E-06	0.057784	1.91E+01
San Joaquin	2020	Industrial - Garbage Transfer	Aggregate	Aggregate	Diesel	346.2250505	3.25E-06	2.16E-05	2.1E-05	1.01E-07	9.6E-07	8.83E-07	0.010655	3.53E+00
San Joaquin	2020	Industrial - Misc - Aerial Lifts	Aggregate	Aggregate	Gasoline	19735.0167	0.001643	0.001502	0.058278	5.03E-06	0.000456	0.000345	0.424942	1.41E+02
San Joaquin	2020	Industrial - Misc - Aerial Lifts	Aggregate	Aggregate	Diesel	30.26812281	9.17E-05	0.00058	0.000372	8.83E-09	2.14E-05	1.62E-05	0.000931	3.08E-01
San Joaquin	2020	Industrial - Misc - Aerial Lifts	Aggregate	Aggregate	Nat Gas	337.674181	2.18E-05	0.000169	0.006148	1.31E-08	1.66E-05	1.25E-05	5.41E-07	1.79E-04
San Joaquin	2020	Industrial - Misc - Forklifts	Aggregate	Aggregate	Gasoline	621787.1855	0.013593	0.061899	1.500968	0.00014	0.000978	0.000739	14.01922	4.64E+03
San Joaquin	2020	Industrial - Misc - Forklifts	Aggregate	Aggregate	Nat Gas	1238420.165	4.04E-06	0.098878	0.914372	1.45E-09	0.001994	1.5E-06	22.40229	7.42E+03
San Joaquin	2020	Industrial - Misc - Other General Industrial Equipment	Aggregate	Aggregate	Gasoline	10656.32186	0.0007	0.000907	0.055243	2.69E-06	1.53E-05	1.16E-05	0.193407	6.40E+01
San Joaquin	2020	Industrial - Misc - Other General Industrial Equipment	Aggregate	Aggregate	Diesel	23.26119908	7.06E-05	0.000459	0.000286	6.79E-09	1.56E-05	1.18E-05	0.000715	2.37E-01
San Joaquin	2020	Industrial - Misc - Other Material Handling Equipment	Aggregate	Aggregate	Gasoline	4701.2	0.00012	0.000527	0.005396	1.11E-06	7.98E-06	6.03E-06	0.114482	3.79E+01
San Joaquin	2020	Industrial - Misc - Sweepers/Scrubbers	Aggregate	Aggregate	Gasoline	35331.03998	0.000936	0.002532	0.079306	9.02E-06	5.68E-05	4.3E-05	0.806414	2.67E+02
San Joaquin	2020	Industrial - Misc - Sweepers/Scrubbers	Aggregate	Aggregate	Diesel	5.953750331	1.71E-05	0.000113	7.55E-05	1.74E-09	3.87E-06	2.93E-06	0.000183	6.06E-02
San Joaquin	2020	Industrial - Mower	Aggregate	Aggregate	Diesel	21510.29709	0.000562	0.004028	0.004306	6.27E-06	0.000194	0.000179	0.661954	2.19E+02
San Joaquin	2020	Industrial - Other General Industrial Equipment	Aggregate	Aggregate	Diesel	51113.06272	0.001654	0.011247	0.007956	1.49E-05	0.000659	0.000606	1.572943	5.21E+02
San Joaquin	2020	Industrial - Other Truck	Aggregate	Aggregate	Diesel	31398.47239	0.000524	0.00399	0.002703	9.15E-06	0.000192	0.000176	0.96625	3.20E+02
San Joaquin	2020	Industrial - Railcars or Track Cars	Aggregate	Aggregate	Diesel	2410.045486	4.21E-05	0.000308	0.000273	7.03E-07	1.6E-05	1.47E-05	0.074166	2.46E+01
San Joaquin	2020	Industrial - Sweepers/Scrubbers	Aggregate	Aggregate	Diesel	9939.095803	0.00036	0.002217	0.001904	2.9E-06	0.000145	0.000133	0.305864	1.01E+02
San Joaquin	2020	Industrial - Tow Tractor	Aggregate	Aggregate	Diesel	58.74602258	1.93E-06	2.42E-05	4E-06	1.71E-08	7.69E-07	7.07E-07	0.001808	5.99E-01
San Joaquin	2020	Industrial - Yard Goat	Aggregate	Aggregate	Diesel	83908.1927	0.001548	0.010274	0.012275	2.45E-05	0.000521	0.000479	2.582174	8.55E+02
TOTAL LIGHT COMMERCIAL + INDUSTRIAL OFFROAD						4.65E+06	3.51E-01	4.36E-01	1.53E+01	8.49E-04	1.05E-02	8.11E-03	9.12E+01	3.02E+04
ESTIMATED Lodi (g/yr; tpd; MTY)						5.45E+05	4.11E-02	5.11E-02	1.80E+00	9.95E-05	1.23E-03	9.51E-04	1.07E+01	3,540
ESTIMATED Lodi (lbs/day)							82	102	3,593	0	2	2	21,379	
ESTIMATED SOI (g/yr; tpd; MTY)						1.22E+04	9.21E-04	1.14E-03	4.02E-02	2.23E-06	2.76E-05	2.13E-05	2.39E-01	79
ESTIMATED SOI (lbs/day)							2	2	80	0	0	0	478	

EMPLOYMENT: http://lehd.ces.census.gov/	Existing
Employment in San Joaquin County (2020)	211,931
Employment in Lodi	24,844
Percent in the City	11.72%

San Joaquin County OFFROAD2021

Source: OFFROAD 2021 v.1.0.5. https://arb.ca.gov/emfac/offroad/emissions-inventory/09105e8817cdc5a696381fadad7a0c4909a8ab85

Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.7) Emissions Inventory
Region Type: County
Region: San Joaquin
Calendar Year: 2020
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Employment in SOI	556
Percent in the SOI	0.26%

Solid Waste Disposal

Waste Generated within Lodi

Annual Year	City	SOI (estimated based on SP)	City + SOI
Lodi Landfill 2020	83,291	3767	87058

Source: CalRecycle. 2024, January (accessed). RDRS Report 1: Overall Jurisdiction Tons for Disposal and Disposal Related Uses https://www2.calrecycle.ca.gov/RecyclingDisposalReporting/Reports/OverallJurisdictionTonsForDisposal

Scenario	City + SOI Service Population	% increase from Existing
Existing Conditions	91,730	NA
Proposed GP	112,306	22%
Current GP	113,677	24%

Landfill Emission Tool (version 1.09.24.2021) CH_4 Model Results.

Based on the Lodi Landfill K-Factor

	Existing Conditions (City+SOI)		Proposed GP (City+SOI)		Current GP (City+SOI)	
	CH_4 Tons	$MTCO_2e$ w/LFG Capture* 2020 TOTAL	CH_4 Tons	$MTCO_2e$ w/LFG Capture* 2045 TOTAL	CH_4 Tons	$MTCO_2e$ w/LFG Capture* 2045 TOTAL
Year 1	237	79	290	97	293	98
Year 2	1,642	547	2,010	670	2,035	678
Year 3 (PEAK)	**1,843**	**614**	**2,256**	**752**	2,284	**761**
Year 4	1,806	602	2,211	737	2,238	746
Year 5	1,770	590	2,168	723	2,194	731
Year 6	1,735	578	2,125	708	2,151	717
Year 7	1,701	567	2,083	694	2,108	703
Year 8	1,667	556	2,041	680	2,066	689
Year 9	1,634	545	2,001	667	2,025	675
Year 10	1,602	534	1,961	654	1,985	662
Year 11	1,570	523	1,922	641	1,946	649
Year 12	1,539	513	1,884	628	1,907	636
Year 13	1,509	503	1,847	616	1,870	623
Year 14	1,479	493	1,810	603	1,833	611
Year 15	1,449	483	1,775	592	1,796	599
Year 16	1,421	474	1,739	580	1,761	587
Year 17	1,393	464	1,705	568	1,726	575
Year 18	1,365	455	1,671	557	1,692	564
Year 19	1,338	446	1,638	546	1,658	553
Year 20	1,312	437	1,606	535	1,625	542
Year 21	1,286	429	1,574	525	1,593	531
Year 22	1,260	420	1,543	514	1,562	521
Year 23	1,235	412	1,512	504	1,531	510
Year 24	1,211	404	1,482	494	1,500	500
Year 25	1,187	396	1,453	484	1,471	490
Year 26	1,163	388	1,424	475	1,442	481
Year 27	1,140	380	1,396	465	1,413	471
Year 28	1,118	373	1,368	456	1,385	462
Year 29	1,095	365	1,341	447	1,358	453
Year 30	1,074	358	1,315	438	1,331	444
Year 31	1,053	351	1,289	430	1,304	435
Year 32	1,032	344	1,263	421	1,279	426
Year 33	1,011	337	1,238	413	1,253	418
Year 34	991	330	1,214	405	1,228	409
Year 35	972	324	1,190	397	1,204	401
Year 36	952	317	1,166	389	1,180	393
Year 37	934	311	1,143	381	1,157	386
Year 38	915	305	1,120	373	1,134	378
Year 39	897	299	1,098	366	1,112	371
Year 40	879	293	1,076	359	1,089	363
Year 41	862	287	1,055	352	1,068	356
Year 42	845	282	1,034	345	1,047	349
Year 43	828	276	1,014	338	1,026	342
Year 44	812	271	994	331	1,006	335
Year 45	795	265	974	325	986	329
Year 46	780	260	955	318	966	322
Year 47	764	255	936	312	947	316
Year 48	749	250	917	306	928	309
Year 49	734	245	899	300	910	303
Year 50	720	240	881	294	892	297
Year 51	706	235	864	288	874	291
Year 52	692	231	847	282	857	286
Year 53	678	226	830	277	840	280
Year 54	664	221	813	271	823	274
Year 55	651	217	797	266	807	269
Year 56	638	213	782	261	791	264
Year 57	626	209	766	255	775	258
Year 58	613	204	751	250	760	253
Year 59	601	200	736	245	745	248
Year 60	589	196	722	241	730	243
60 YR Avg (Average Annual)	**1,096**	**21,921**	**1,342**	**26,838**	**1,358**	**27,166**

*Landfill Emissions Tool is based on the IPCC Second Assessment Report global warming potential. The numbers in this column are the CO_2e emissions from CH_4 based on IPCC's Fifth Assessment GWPs.

Source: Landfill Emissions Tool Version 1.09.24.2021. and data from CalRecycle. Biogenic CO_2 emissions are not included.

Notes:

			21,921					
	LFG capture Efficiency	0.75	AR5 CH_4 GWP	28	SAR CH_4 GWP	21	Tons to metric Tons	0.9071847

[1] Waste generation based on three year average waste commitment for Lodi obtained from CalRecycle.

[2] Significant CH_4 production typically begins one or two years after waste disposal in a landfill and continues for 10 to 60 years or longer. Consequently, the highest CH_4 emissions from waste disposal in a given year are reported.

[3] Decomposition based on an average annual rainfall of 17 inches per year average (anaerobic decomposition factor (k) of 0.02) for the Lodi Landfill.

[4] The Landfill Gas Estimator only includes the landfill gas (LFG) capture in the landfill gas heat output and therefore the reduction and emissions from landfill gas capture are calculated separately. Assumes 75 percent of fugitive GHG emissions are captured within the landfill's Landfill Gas Capture System with a landfill gas capture efficiency of 75 percent. The Landfill gas capture efficiency is based on the California Air Resources Board's (CARB) Local Government Operations Protocol (LGOP), Version 1.3.

Water and Wastewater Calculations

Indoor Water Demand (City+SOI)	Existing Conditions	Proposed GP	Current GP
Million Gallons Per Day (MGD)	8.23	10.12	10.24
Gallons Per Day (GD)	8,228,622	10,122,426	10,244,512
Million Gallons Per Year (MGY) TOTAL	3,003	3,695	3,739
Wastewater Water Demand (City+SOI)	**Existing Conditions**	**Proposed GP**	**Current GP**
GY	2,637,869,831	3,249,607,741	3,288,800,952
GD	7,227,041	8,903,035	9,009,438
AFY	8,095	9,973	10,093
MGY TOTAL	2,638	3,250	3,289

Source:

Lodi, City of. 2012, August. Water Master Plan. https://www.lodi.gov/DocumentCenter/View/965/Water-Master-Plan-PDF

State Water Resources Control Board. 2024. Water Conservation Portal, Current Monthly Reports, Lodi April 2022-March 2023. https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.html

Note:

Commercial water use factor = 2,750 gallons/acre/day and industrial water use factor = 2,200 gallons/acre/day (Lodi 2012)

Residential water use factor = 110 gallons/capita/day based on the water use in Lodi averaged over 12 months (April 2022 - March 2023) from the State Water Resource Board Water Conservation and Production Reports (SWRCB 2024)

Direct Emissions from Wastewater Treatment

Wastewater Treatment Type	BIOGENIC CO_2 MT/Gallon	CH_4 MT/Gallon	N_2O MT/Gallon	Non-Biogenic CO_2e MT/Gallon
Aerobic	3.90E-07	1.34E-09	8.52E-10	2.63E-07
Anaerobic (Facultative Lagoons)	3.90E-07	4.01E-07	8.52E-10	1.15E-05
Septic	0.00E+00	2.50E-07	8.52E-10	7.23E-06

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-35, Annual Wastewater Treatment Direct Emission Factors (short ton per gallon)

Aerobic	Existing Conditions	Proposed GP	Current GP
Non-Biogenic CO_2e TOTAL =	695	856	866

Water and Wastewater Calculations

Energy for Water Conveyance, Treatment, Distribution, and Wastewater Treatment

Location see Tab G-33	Supply (Water Conveyance)	Water Treatment	Water Distribution	Total Water	Wastewater Treatment
	kWhr/million gallons				
South Coast	3,044	725	1,537	5,306	1,501
San Francisco Bay	1,182	754	2,998	4,934	1,542
Central Coast	1,577	754	1,537	3,868	1,542
Tulare Lake	1,506	748	166	2,420	1,519
North Coast	620	754	1,537	2,911	1,542
San Joaquin River	827	748	166	1,741	1,519
Colorado River	2,304	748	166	3,218	1,519
Sacramento River	698	748	166	1,612	1,519
South Lahontan	1,953	748	1,537	4,238	1,519
North Lathontan	541	748	166	1,455	1,519

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-32, Water Energy Intensity Factors by Hydrologic Region and Process (kWh per million gallon).

Weighted Average

Year	Intensity factor			CO_2e
	CO_2 lbs/MWH	CH_4 lbs/MWH	N_2O lbs/MWH	lbs/MWh
2020	453.098	0.033	0.004	455.082
2045	453.098	0.033	0.004	455.082
	CO_2 MTons/MWH	CH_4 MTons/MWH	N_2O MTons/MWH	MTons/MWh
2020	0.206	0.000	0.000	0.206
2045	0.206	0.000	0.000	0.206

Notes:

Weighted average calculated based on proportion of annual electricity usage data for PG&E vs LEU.

GHG Emissions from Energy Associated with Water/Wastewater

Energy Associated with Water Use (City+SOI)	Existing Conditions	Proposed GP	Current GP
	Mwh		
Subtotal Water Use	5,229	6,432	6,510
Subtotal Wastewater Generation	4,007	4,936	4,996
Total Water/Wastewater	9,236	11,369	11,506

GHG Emissions from Energy Associated with Water Use/Wastewater Generation (City+SOI)	Existing Conditions	Proposed GP	Current GP
	$MTCO_2e$		
Subtotal Water Use	1,079	1,328	1,344
Subtotal Wastewater Generation	827	1,019	1,031
Total Water/Wastewater	1,907	2,347	2,375

Total GHGs

GHG Emissions from Water/Wastewater Use (City+SOI)	Existing Conditions	Proposed GP	Current GP
	$MTCO_2e$		
Subtotal Water Use	1,079	1,328	1,344
Subtotal Wastewater Generation	1,522	1,875	1,897
Total Water/Wastewater	**2,601**	3,202	**3,241**

Refrigerants

Refrigerants	$MTCO_2e$	
2020 Statewide Refrigerant Use (AR4)	$MTCO_2e$	19,029,283
US Census 2020 California Population	People	39,346,023
	MT/person	0.48

	Existing Conditions		Proposed GP		Current GP	
	City	SOI	City	SOI	City	SOI
Population	62,735	3,593	70,073	12,113	70,073	13,068
MTCO2e	30,341	1,738	33,890	5,858	33,890	6,320

Source: CARB. Greenhouse Gas Emissions Inventory Query Tool for years 2000 to 2021 (2023 Edition) - Query Results. Main Activity: Use of substitutes for ozone depleting substances Activity Subset: Refrigeration and Air Conditioning. AR 4. https://ww2.arb.ca.gov/applications/greenhouse-gas-emission-inventory-0

U.S. Census Bureau. January 2024 (accessed). Table DP05 2020: ACS 5-Year Demographics and Housing Estimates. https://data.census.gov/table/ACSDP5Y2020.DP05?g=040XX00US06&tid=ACSDP5Y2019.DP05

City of Lodi VMT

Source: Fehr & Peers 2024. Based on the San Joaquin Council of Governments Regional Travel Demand Model (SJCOG Model).

Scenario	Area	Daily VMT			Total Daily VMT	Total with RTAC		Service Population	VMT/SP	VMT/SP w RTAC
		IX	XI	II			%			
Existing Conditions	City	35,433	35,482	248,820	319,735	284,278	90%	87,579	3.7	3.2
	SOI	29,860	29,792	2,044	61,696	31,870	10%	4,149	14.9	7.7
	Total	65,292	65,274	250,864	381,430	316,147		91,730	4.2	3.4
Current GP	City	85,197	85,243	262,772	433,212	347,992	83%	98,439	4.4	3.5
	SOI	60,628	60,535	10,366	131,529	70,948	17%	15,239	8.6	4.7
	Total	145,825	145,778	273,138	564,741	418,940		113,677	5.0	3.7
Proposed GP	City	72,033	72,107	262,337	406,477	334,407	84%	26,951	15.1	12.4
	SOI	55,233	55,080	9,160	119,473	64,317	16%	14,115	8.5	4.6
	Total	127,266	127,187	271,497	525,950	398,724		112,306	4.7	3.6

Notes: Total may not add to 100% due to rounding.

IX = Internal-External

XI = External- Internal

II = Internal-Internal

Modeling of vehicle miles traveled (VMT) provided by Fehr & Peers is based on San Joaquin Council of Governments Regional Travel Demand Model (SJCOG Model). VMT from passenger vehicles and trucks that have an origin or destination in the City using a transportation origin-destination methodology. Accounting of VMT is based on the recommendations of CARB's Regional Targets Advisory Committee (RTAC) created under Senate Bill 375 (SB 375). For accounting purposes, there are three types of trips:

» Vehicle trips that originated and terminated within the City (Internal-Internal, I-I). Using the accounting rules established by RTAC, 100 percent of the length of these trips, and their emissions, are attributed to the City.

» Vehicle trips that either originated or terminated (but not both) within the City (Internal-External or External-Internal, I-X and X-I). Using the accounting rules established by RTAC, 50 percent of the trip length for these trips is attributed to the City.

» Vehicle trips that neither originated nor terminated within the City. These trips are commonly called pass-through trips (External-External, X-X). Using the accounting rules established by RTAC, these trips are not counted towards the City's VMT or emissions.

Lodi — TRANSPORTATION SECTOR

Source: EMFAC2021 V 1.0.2, Web Database - Emissions Rates. Los Angeles Sub Area. Based on the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) Global Warming Potentials (GWPs)

Note: MTons = metric tons; CO_2e = carbon dioxide-equivalent.

Criteria Air Pollutant Emissions

	lbs/day					
	ROG	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Existing Conditions						
City	25	265	811	3	5	6
SOI	3	30	91	0	1	1
Total	27	295	902	3	5	7
Current GP						
City	6,360	83	390	2	22	8
SOI	1,297	17	79	0	5	2
Total	7,657	100	469	3	27	10
Proposed GP						
City	6,112	80	375	2	22	8
SOI	1,175	15	72	0	0	1
Total	7,287	95	447	3	22	9
Change from Current GP	**-369**	**-5**	**-23**	**0**	**-5**	**-1**
Change from Existing Conditions (2020-2045)	7,260	-200	-455	-1	17	2

	tons/year					
	ROG	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Existing Conditions						
City	4	46	141	1	1	1
SOI	0	5	16	0	0	0
Total	5	51	156	1	1	1
Current GP						
City	1,103	14	68	0	4	1
SOI	225	3	14	0	1	0
Total	1,328	17	81	0	5	2
Proposed GP						
City	1,060	14	65	0	4	1
SOI	204	3	12	0	0	0
Total	1,264	17	77	0	4	2
Change from Current GP	**-64**	**-1**	**-4**	**0**	**-1**	**0**
Change from Existing Conditions (2020-2045)	1,260	-35	-79	0	3	0

Notes:

[1] lbs to Tons 2000

GHG EMISSIONS

	Mtons/year			
	CO_2	CH_4	N_2O	CO_2e
Existing Conditions				
City	46,626	1	3	47,456
SOI	5,227	0	0	5,320
Total	51,854	1	3	52,776
Current GP				
City	37,627	0	2	38,219
SOI	7,671	0	0	7,792
Total	45,298	0	3	46,011
Proposed GP				
City	36,158	0	2	36,727
SOI	6,954	0	0	7,064
Total	43,112	0	3	43,791
Change from Current GP	**-2,186**	**0**	**0**	**-2,220**
Change from Existing Conditions (2020-2045)	**-8,742**	**-1**	**-1**	**-8,986**

Notes:

[1] MTons = metric tons; CO2e = carbon dioxide-equivalent.

Year 2020 Existing Conditions: Criteria Air Pollutants

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

City Daily VMT	284,278				lbs/day			
Vehicle Type	**Fuel Type**	**Percent of VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
All Other Buses	Diesel	0.02%	0.06	0.70	0.16	0.00	0.02	0.00
All Other Buses	Natural Gas	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
LDA	Gasoline	47.50%	4.99	20.98	326.76	0.90	0.48	2.38
LDA	Diesel	0.14%	0.03	0.29	0.36	0.00	0.02	0.01
LDA	Electricity	0.64%	0.00	0.00	0.00	0.00	0.00	0.03
LDA	Plug-in Hybrid	0.91%	0.01	0.02	1.53	0.01	0.01	0.05
LDT1	Gasoline	3.73%	1.41	5.79	62.08	0.08	0.07	0.19
LDT1	Diesel	0.00%	0.00	0.01	0.01	0.00	0.00	0.00
LDT1	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT1	Plug-in Hybrid	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT2	Gasoline	17.27%	2.39	14.61	148.28	0.41	0.19	0.87
LDT2	Diesel	0.04%	0.01	0.02	0.05	0.00	0.00	0.00
LDT2	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT2	Plug-in Hybrid	0.04%	0.00	0.00	0.07	0.00	0.00	0.00
LHD1	Gasoline	1.72%	0.84	3.46	17.98	0.10	0.02	0.09
LHD1	Diesel	1.65%	2.52	28.34	7.45	0.06	0.58	0.12
LHD2	Gasoline	0.21%	0.07	0.37	1.76	0.01	0.00	0.01
LHD2	Diesel	0.58%	0.74	7.34	2.02	0.03	0.16	0.04
MCY	Gasoline	0.33%	3.21	1.47	34.77	0.00	0.00	0.01
MDV	Gasoline	16.36%	3.67	20.91	175.64	0.48	0.18	0.82
MDV	Diesel	0.27%	0.03	0.21	0.50	0.01	0.01	0.01
MDV	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
MDV	Plug-in Hybrid	0.06%	0.00	0.00	0.11	0.00	0.00	0.00
MH	Gasoline	0.08%	0.05	0.26	1.26	0.01	0.00	0.01
MH	Diesel	0.03%	0.03	0.97	0.09	0.00	0.03	0.00
Motor Coach	Diesel	0.01%	0.01	0.27	0.03	0.00	0.01	0.00
OBUS	Gasoline	0.05%	0.04	0.28	0.87	0.01	0.00	0.00
PTO	Diesel	0.11%	0.09	2.79	0.34	0.01	0.02	0.00
SBUS	Gasoline	0.03%	0.01	0.05	0.13	0.00	0.00	0.00
SBUS	Diesel	0.06%	0.03	2.15	0.10	0.00	0.01	0.00
SBUS	Natural Gas	0.01%	0.00	0.04	0.79	0.00	0.00	0.00
T6 CAIRP Class 4	Diesel	0.00%	0.00	0.03	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	0.01%	0.00	0.03	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	0.01%	0.00	0.10	0.01	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	0.08%	0.02	0.75	0.09	0.01	0.02	0.01
T6 Instate Delivery Class 4	Diesel	0.05%	0.06	0.99	0.18	0.00	0.02	0.00
T6 Instate Delivery Class 5	Diesel	0.03%	0.04	0.63	0.11	0.00	0.02	0.00
T6 Instate Delivery Class 6	Diesel	0.13%	0.19	2.82	0.52	0.01	0.08	0.01
T6 Instate Delivery Class 7	Diesel	0.04%	0.03	0.67	0.08	0.00	0.01	0.00
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.00	0.00	0.04	0.00	0.00	0.00
T6 Instate Other Class 4	Diesel	0.10%	0.16	2.67	0.47	0.01	0.08	0.01
T6 Instate Other Class 5	Diesel	0.28%	0.13	2.86	0.44	0.02	0.07	0.02
T6 Instate Other Class 6	Diesel	0.21%	0.24	4.06	0.70	0.01	0.12	0.02
T6 Instate Other Class 7	Diesel	0.14%	0.08	2.15	0.26	0.01	0.04	0.01
T6 Instate Other Class 7	Natural Gas	0.00%	0.00	0.00	0.05	0.00	0.00	0.00
T6 Instate Tractor Class 6	Diesel	0.00%	0.01	0.07	0.01	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	0.24%	0.15	4.34	0.45	0.02	0.05	0.02
T6 Instate Tractor Class 7	Natural Gas	0.00%	0.00	0.00	0.07	0.00	0.00	0.00
T6 OOS Class 4	Diesel	0.00%	0.00	0.02	0.00	0.00	0.00	0.00
T6 OOS Class 5	Diesel	0.00%	0.00	0.02	0.00	0.00	0.00	0.00
T6 OOS Class 6	Diesel	0.01%	0.00	0.06	0.01	0.00	0.00	0.00
T6 OOS Class 7	Diesel	0.06%	0.02	0.52	0.07	0.00	0.01	0.00
T6 Public Class 4	Diesel	0.01%	0.00	0.32	0.01	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 5	Diesel	0.02%	0.01	0.36	0.02	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	0.00%	0.00	0.00	0.03	0.00	0.00	0.00
T6 Public Class 6	Diesel	0.03%	0.02	1.12	0.04	0.00	0.01	0.00
T6 Public Class 6	Natural Gas	0.00%	0.00	0.00	0.02	0.00	0.00	0.00
T6 Public Class 7	Diesel	0.04%	0.03	2.02	0.07	0.00	0.02	0.00
T6 Public Class 7	Natural Gas	0.00%	0.00	0.00	0.05	0.00	0.00	0.00
T6 Utility Class 5	Diesel	0.01%	0.00	0.05	0.00	0.00	0.00	0.00
T6 Utility Class 5	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Diesel	0.00%	0.00	0.02	0.00	0.00	0.00	0.00

T6 Utility Class 6	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	0.00%	0.00	0.02	0.00	0.00	0.00	0.00
T6 Utility Class 7	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.13%	0.21	1.08	4.56	0.02	0.00	0.01
T7 CAIRP Class 8	Diesel	1.66%	0.53	28.84	2.08	0.16	0.50	0.38
T7 NNOOS Class 8	Diesel	1.97%	1.08	35.44	4.62	0.19	0.98	0.44
T7 NOOS Class 8	Diesel	0.71%	0.26	12.85	1.00	0.07	0.23	0.16
T7 Other Port Class 8	Diesel	0.03%	0.02	0.70	0.06	0.00	0.00	0.01
T7 POAK Class 8	Diesel	0.07%	0.05	1.95	0.17	0.01	0.01	0.02
T7 POLA Class 8	Diesel	0.09%	0.07	2.71	0.23	0.01	0.02	0.02
T7 POLA Class 8	Natural Gas	0.00%	0.00	0.00	0.07	0.00	0.00	0.00
T7 Public Class 8	Diesel	0.09%	0.09	6.72	0.29	0.01	0.04	0.02
T7 Public Class 8	Natural Gas	0.01%	0.00	0.03	0.39	0.00	0.00	0.00
T7 Single Concrete/Transit Mix	Diesel	0.05%	0.01	0.52	0.06	0.01	0.01	0.01
T7 Single Concrete/Transit Mix	Natural Gas	0.00%	0.00	0.00	0.04	0.00	0.00	0.00
T7 Single Dump Class 8	Diesel	0.18%	0.06	2.81	0.24	0.02	0.04	0.04
T7 Single Dump Class 8	Natural Gas	0.01%	0.00	0.02	0.31	0.00	0.00	0.00
T7 Single Other Class 8	Diesel	0.31%	0.11	4.69	0.43	0.03	0.07	0.07
T7 Single Other Class 8	Natural Gas	0.01%	0.00	0.03	0.51	0.00	0.00	0.00
T7 SWCV Class 8	Diesel	0.07%	0.01	4.05	0.03	0.02	0.01	0.02
T7 SWCV Class 8	Natural Gas	0.03%	0.04	0.71	3.56	0.00	0.00	0.01
T7 Tractor Class 8	Diesel	1.14%	0.52	23.48	1.97	0.11	0.33	0.26
T7 Tractor Class 8	Natural Gas	0.02%	0.00	0.06	1.00	0.00	0.00	0.00
T7 Utility Class 8	Diesel	0.01%	0.00	0.09	0.01	0.00	0.00	0.00
T7IS	Gasoline	0.00%	0.01	0.05	0.62	0.00	0.00	0.00
UBUS	Gasoline	0.02%	0.00	0.03	0.03	0.00	0.00	0.00
UBUS	Diesel	0.04%	0.02	0.53	0.05	0.00	0.00	0.01
UBUS	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Natural Gas	0.01%	0.00	0.01	1.43	0.00	0.00	0.00
	Total	100.00%	24.54	265.45	810.74	2.88	4.63	6.24

SOI Daily VMT	**31,870**				**lbs/day**			
Vehicle Type	**Fuel Type**	**Percent of VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
All Other Buses	Diesel	0.02%	0.01	0.08	0.02	0.00	0.00	0.00
All Other Buses	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDA	Gasoline	47.50%	0.56	2.35	36.63	0.10	0.05	0.27
LDA	Diesel	0.14%	0.00	0.03	0.04	0.00	0.00	0.00
LDA	Electricity	0.64%	0.00	0.00	0.00	0.00	0.00	0.00
LDA	Plug-in Hybrid	0.91%	0.00	0.00	0.17	0.00	0.00	0.01
LDT1	Gasoline	3.73%	0.16	0.65	6.96	0.01	0.01	0.02
LDT1	Diesel	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT1	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT1	Plug-in Hybrid	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT2	Gasoline	17.27%	0.27	1.64	16.62	0.05	0.02	0.10
LDT2	Diesel	0.04%	0.00	0.00	0.01	0.00	0.00	0.00
LDT2	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT2	Plug-in Hybrid	0.04%	0.00	0.00	0.01	0.00	0.00	0.00
LHD1	Gasoline	1.72%	0.09	0.39	2.02	0.01	0.00	0.01
LHD1	Diesel	1.65%	0.28	3.18	0.84	0.01	0.06	0.01
LHD2	Gasoline	0.21%	0.01	0.04	0.20	0.00	0.00	0.00
LHD2	Diesel	0.58%	0.08	0.82	0.23	0.00	0.02	0.00
MCY	Gasoline	0.33%	0.36	0.17	3.90	0.00	0.00	0.00
MDV	Gasoline	16.36%	0.41	2.34	19.69	0.05	0.02	0.09
MDV	Diesel	0.27%	0.00	0.02	0.06	0.00	0.00	0.00
MDV	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
MDV	Plug-in Hybrid	0.06%	0.00	0.00	0.01	0.00	0.00	0.00
MH	Gasoline	0.08%	0.01	0.03	0.14	0.00	0.00	0.00
MH	Diesel	0.03%	0.00	0.11	0.01	0.00	0.00	0.00
Motor Coach	Diesel	0.01%	0.00	0.03	0.00	0.00	0.00	0.00
OBUS	Gasoline	0.05%	0.00	0.03	0.10	0.00	0.00	0.00
PTO	Diesel	0.11%	0.01	0.31	0.04	0.00	0.00	0.00
SBUS	Gasoline	0.03%	0.00	0.01	0.02	0.00	0.00	0.00
SBUS	Diesel	0.06%	0.00	0.24	0.01	0.00	0.00	0.00
SBUS	Natural Gas	0.01%	0.00	0.00	0.09	0.00	0.00	0.00
T6 CAIRP Class 4	Diesel	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	0.01%	0.00	0.01	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	0.08%	0.00	0.08	0.01	0.00	0.00	0.00

T6 Instate Delivery Class 4	Diesel	0.05%	0.01	0.11	0.02	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	0.03%	0.00	0.07	0.01	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	0.13%	0.02	0.32	0.06	0.00	0.01	0.00
T6 Instate Delivery Class 7	Diesel	0.04%	0.00	0.08	0.01	0.00	0.00	0.00
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Other Class 4	Diesel	0.10%	0.02	0.30	0.05	0.00	0.01	0.00
T6 Instate Other Class 5	Diesel	0.28%	0.01	0.32	0.05	0.00	0.01	0.00
T6 Instate Other Class 6	Diesel	0.21%	0.03	0.46	0.08	0.00	0.01	0.00
T6 Instate Other Class 7	Diesel	0.14%	0.01	0.24	0.03	0.00	0.00	0.00
T6 Instate Other Class 7	Natural Gas	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Instate Tractor Class 6	Diesel	0.00%	0.00	0.01	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	0.24%	0.02	0.49	0.05	0.00	0.01	0.00
T6 Instate Tractor Class 7	Natural Gas	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 OOS Class 4	Diesel	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 5	Diesel	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 6	Diesel	0.01%	0.00	0.01	0.00	0.00	0.00	0.00
T6 OOS Class 7	Diesel	0.06%	0.00	0.06	0.01	0.00	0.00	0.00
T6 Public Class 4	Diesel	0.01%	0.00	0.04	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 5	Diesel	0.02%	0.00	0.04	0.00	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 6	Diesel	0.03%	0.00	0.13	0.00	0.00	0.00	0.00
T6 Public Class 6	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 7	Diesel	0.04%	0.00	0.23	0.01	0.00	0.00	0.00
T6 Public Class 7	Natural Gas	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Utility Class 5	Diesel	0.01%	0.00	0.01	0.00	0.00	0.00	0.00
T6 Utility Class 5	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Diesel	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.13%	0.02	0.12	0.51	0.00	0.00	0.00
T7 CAIRP Class 8	Diesel	1.66%	0.06	3.23	0.23	0.02	0.06	0.04
T7 NNOOS Class 8	Diesel	1.97%	0.12	3.97	0.52	0.02	0.11	0.05
T7 NOOS Class 8	Diesel	0.71%	0.03	1.44	0.11	0.01	0.03	0.02
T7 Other Port Class 8	Diesel	0.03%	0.00	0.08	0.01	0.00	0.00	0.00
T7 POAK Class 8	Diesel	0.07%	0.01	0.22	0.02	0.00	0.00	0.00
T7 POLA Class 8	Diesel	0.09%	0.01	0.30	0.03	0.00	0.00	0.00
T7 POLA Class 8	Natural Gas	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T7 Public Class 8	Diesel	0.09%	0.01	0.75	0.03	0.00	0.00	0.00
T7 Public Class 8	Natural Gas	0.01%	0.00	0.00	0.04	0.00	0.00	0.00
T7 Single Concrete/Transit Mix	Diesel	0.05%	0.00	0.06	0.01	0.00	0.00	0.00
T7 Single Concrete/Transit Mix	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T7 Single Dump Class 8	Diesel	0.18%	0.01	0.31	0.03	0.00	0.00	0.00
T7 Single Dump Class 8	Natural Gas	0.01%	0.00	0.00	0.03	0.00	0.00	0.00
T7 Single Other Class 8	Diesel	0.31%	0.01	0.53	0.05	0.00	0.01	0.01
T7 Single Other Class 8	Natural Gas	0.01%	0.00	0.00	0.06	0.00	0.00	0.00
T7 SWCV Class 8	Diesel	0.07%	0.00	0.45	0.00	0.00	0.00	0.00
T7 SWCV Class 8	Natural Gas	0.03%	0.00	0.08	0.40	0.00	0.00	0.00
T7 Tractor Class 8	Diesel	1.14%	0.06	2.63	0.22	0.01	0.04	0.03
T7 Tractor Class 8	Natural Gas	0.02%	0.00	0.01	0.11	0.00	0.00	0.00
T7 Utility Class 8	Diesel	0.01%	0.00	0.01	0.00	0.00	0.00	0.00
T7IS	Gasoline	0.00%	0.00	0.01	0.07	0.00	0.00	0.00
UBUS	Gasoline	0.02%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Diesel	0.04%	0.00	0.06	0.01	0.00	0.00	0.00
UBUS	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Natural Gas	0.01%	0.00	0.00	0.16	0.00	0.00	0.00
	Total	100.00%	2.75	29.76	90.89	0.32	0.52	0.70

Year 2020 Existing Conditions: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan Measure Documentation Supplement.

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**98,644,293**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
All Other Buses	Diesel	0.02%	22.17	0.00	0.00	23.11
All Other Buses	Natural Gas	0.00%	0.55	0.00	0.00	0.60
LDA	Gasoline	47.50%	14,276.33	0.19	0.30	14,361.10
LDA	Diesel	0.14%	32.44	0.00	0.01	33.80
LDA	Electricity	0.64%	0.00	0.00	0.00	0.00
LDA	Plug-in Hybrid	0.91%	143.73	0.00	0.00	143.90
LDT1	Gasoline	3.73%	1,333.60	0.05	0.06	1,350.73
LDT1	Diesel	0.00%	0.22	0.00	0.00	0.23
LDT1	Electricity	0.00%	0.00	0.00	0.00	0.00
LDT1	Plug-in Hybrid	0.00%	0.04	0.00	0.00	0.04
LDT2	Gasoline	17.27%	6,582.61	0.09	0.16	6,627.54
LDT2	Diesel	0.04%	14.05	0.00	0.00	14.64
LDT2	Electricity	0.00%	0.00	0.00	0.00	0.00
LDT2	Plug-in Hybrid	0.04%	6.11	0.00	0.00	6.12
LHD1	Gasoline	1.72%	1,630.08	0.03	0.03	1,638.59
LHD1	Diesel	1.65%	1,043.09	0.02	0.16	1,087.15
LHD2	Gasoline	0.21%	217.39	0.00	0.00	218.29
LHD2	Diesel	0.58%	448.00	0.01	0.07	466.85
MCY	Gasoline	0.33%	63.96	0.07	0.01	69.89
MDV	Gasoline	16.36%	7,567.84	0.12	0.21	7,626.34
MDV	Diesel	0.27%	114.53	0.00	0.02	119.32
MDV	Electricity	0.00%	0.00	0.00	0.00	0.00
MDV	Plug-in Hybrid	0.06%	9.94	0.00	0.00	9.95
MH	Gasoline	0.08%	146.01	0.00	0.00	146.67
MH	Diesel	0.03%	30.64	0.00	0.00	31.92
Motor Coach	Diesel	0.01%	24.52	0.00	0.00	25.55
OBUS	Gasoline	0.05%	85.24	0.00	0.00	85.78
PTO	Diesel	0.11%	232.07	0.00	0.04	241.78
SBUS	Gasoline	0.03%	25.15	0.00	0.00	25.29
SBUS	Diesel	0.06%	72.74	0.00	0.01	75.79
SBUS	Natural Gas	0.01%	14.85	0.04	0.00	16.71
T6 CAIRP Class 4	Diesel	0.00%	4.20	0.00	0.00	4.37
T6 CAIRP Class 5	Diesel	0.01%	5.74	0.00	0.00	5.98
T6 CAIRP Class 6	Diesel	0.01%	14.91	0.00	0.00	15.53
T6 CAIRP Class 7	Diesel	0.08%	87.83	0.00	0.01	91.50
T6 Instate Delivery Class 4	Diesel	0.05%	53.30	0.00	0.01	55.53
T6 Instate Delivery Class 5	Diesel	0.03%	35.11	0.00	0.01	36.59
T6 Instate Delivery Class 6	Diesel	0.13%	151.27	0.00	0.02	157.63
T6 Instate Delivery Class 7	Diesel	0.04%	44.20	0.00	0.01	46.05
T6 Instate Delivery Class 7	Natural Gas	0.00%	1.72	0.00	0.00	1.85
T6 Instate Other Class 4	Diesel	0.10%	112.68	0.00	0.02	117.42
T6 Instate Other Class 5	Diesel	0.28%	319.48	0.00	0.05	332.84
T6 Instate Other Class 6	Diesel	0.21%	234.97	0.00	0.04	244.82
T6 Instate Other Class 7	Diesel	0.14%	155.66	0.00	0.02	162.18
T6 Instate Other Class 7	Natural Gas	0.00%	2.92	0.00	0.00	3.13
T6 Instate Tractor Class 6	Diesel	0.00%	3.11	0.00	0.00	3.24
T6 Instate Tractor Class 7	Diesel	0.24%	257.14	0.00	0.04	267.90
T6 Instate Tractor Class 7	Natural Gas	0.00%	4.14	0.00	0.00	4.44
T6 OOS Class 4	Diesel	0.00%	2.40	0.00	0.00	2.50
T6 OOS Class 5	Diesel	0.00%	3.28	0.00	0.00	3.42
T6 OOS Class 6	Diesel	0.01%	8.53	0.00	0.00	8.89
T6 OOS Class 7	Diesel	0.06%	58.32	0.00	0.01	60.75
T6 Public Class 4	Diesel	0.01%	7.62	0.00	0.00	7.94
T6 Public Class 4	Natural Gas	0.00%	0.10	0.00	0.00	0.10
T6 Public Class 5	Diesel	0.02%	19.17	0.00	0.00	19.97
T6 Public Class 5	Natural Gas	0.00%	1.58	0.00	0.00	1.70

Year 2020 Existing Conditions: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan Measure Documentation Supplement.

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**98,644,293**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T6 Public Class 6	Diesel	0.03%	31.27	0.00	0.00	32.58
T6 Public Class 6	Natural Gas	0.00%	0.97	0.00	0.00	1.04
T6 Public Class 7	Diesel	0.04%	49.51	0.00	0.01	51.59
T6 Public Class 7	Natural Gas	0.00%	2.49	0.00	0.00	2.68
T6 Utility Class 5	Diesel	0.01%	8.48	0.00	0.00	8.83
T6 Utility Class 5	Natural Gas	0.00%	0.02	0.00	0.00	0.02
T6 Utility Class 6	Diesel	0.00%	1.63	0.00	0.00	1.70
T6 Utility Class 6	Natural Gas	0.00%	0.01	0.00	0.00	0.01
T6 Utility Class 7	Diesel	0.00%	2.27	0.00	0.00	2.36
T6 Utility Class 7	Natural Gas	0.00%	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.13%	252.18	0.01	0.01	254.21
T7 CAIRP Class 8	Diesel	1.66%	2,623.41	0.00	0.41	2,733.05
T7 NNOOS Class 8	Diesel	1.97%	3,127.81	0.01	0.49	3,258.62
T7 NOOS Class 8	Diesel	0.71%	1,127.24	0.00	0.18	1,174.36
T7 Other Port Class 8	Diesel	0.03%	45.98	0.00	0.01	47.90
T7 POAK Class 8	Diesel	0.07%	118.07	0.00	0.02	123.01
T7 POLA Class 8	Diesel	0.09%	155.05	0.00	0.02	161.53
T7 POLA Class 8	Natural Gas	0.00%	1.42	0.00	0.00	1.53
T7 Public Class 8	Diesel	0.09%	178.67	0.00	0.03	186.15
T7 Public Class 8	Natural Gas	0.01%	9.57	0.01	0.00	10.39
T7 Single Concrete/Transit Mix	Diesel	0.05%	83.16	0.00	0.01	86.63
T7 Single Concrete/Transit Mix	Natural Gas	0.00%	1.18	0.00	0.00	1.27
T7 Single Dump Class 8	Diesel	0.18%	292.29	0.00	0.05	304.51
T7 Single Dump Class 8	Natural Gas	0.01%	7.85	0.01	0.00	8.45
T7 Single Other Class 8	Diesel	0.31%	514.88	0.00	0.08	536.40
T7 Single Other Class 8	Natural Gas	0.01%	13.23	0.01	0.00	14.24
T7 SWCV Class 8	Diesel	0.07%	273.77	0.00	0.04	285.21
T7 SWCV Class 8	Natural Gas	0.03%	46.67	0.14	0.01	53.15
T7 Tractor Class 8	Diesel	1.14%	1,797.92	0.00	0.28	1,873.09
T7 Tractor Class 8	Natural Gas	0.02%	24.32	0.02	0.00	26.16
T7 Utility Class 8	Diesel	0.01%	10.43	0.00	0.00	10.87
T7IS	Gasoline	0.00%	0.93	0.00	0.00	0.97
UBUS	Gasoline	0.02%	36.88	0.00	0.00	36.98
UBUS	Diesel	0.04%	47.90	0.00	0.01	49.90
UBUS	Electricity	0.00%	0.00	0.00	0.00	0.00
UBUS	Natural Gas	0.01%	11.59	0.02	0.00	12.79
	Total	100%	46626.31	0.87	3.04	47456.15

Year 2020 Existing Conditions: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan Measure Documentation Supplement.

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**98,644,293**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
All Other Buses	Diesel	0.02%	2.49	0.00	0.00	2.59
All Other Buses	Natural Gas	0.00%	0.06	0.00	0.00	0.07
LDA	Gasoline	47.50%	1,600.50	0.02	0.03	1,610.01
LDA	Diesel	0.14%	3.64	0.00	0.00	3.79
LDA	Electricity	0.64%	0.00	0.00	0.00	0.00
LDA	Plug-in Hybrid	0.91%	16.11	0.00	0.00	16.13
LDT1	Gasoline	3.73%	149.51	0.01	0.01	151.43
LDT1	Diesel	0.00%	0.02	0.00	0.00	0.03
LDT1	Electricity	0.00%	0.00	0.00	0.00	0.00
LDT1	Plug-in Hybrid	0.00%	0.00	0.00	0.00	0.00
LDT2	Gasoline	17.27%	737.97	0.01	0.02	743.01
LDT2	Diesel	0.04%	1.58	0.00	0.00	1.64
LDT2	Electricity	0.00%	0.00	0.00	0.00	0.00
LDT2	Plug-in Hybrid	0.04%	0.69	0.00	0.00	0.69
LHD1	Gasoline	1.72%	182.75	0.00	0.00	183.70
LHD1	Diesel	1.65%	116.94	0.00	0.02	121.88
LHD2	Gasoline	0.21%	24.37	0.00	0.00	24.47
LHD2	Diesel	0.58%	50.22	0.00	0.01	52.34
MCY	Gasoline	0.33%	7.17	0.01	0.00	7.84
MDV	Gasoline	16.36%	848.42	0.01	0.02	854.98
MDV	Diesel	0.27%	12.84	0.00	0.00	13.38
MDV	Electricity	0.00%	0.00	0.00	0.00	0.00
MDV	Plug-in Hybrid	0.06%	1.11	0.00	0.00	1.12
MH	Gasoline	0.08%	16.37	0.00	0.00	16.44
MH	Diesel	0.03%	3.43	0.00	0.00	3.58
Motor Coach	Diesel	0.01%	2.75	0.00	0.00	2.86
OBUS	Gasoline	0.05%	9.56	0.00	0.00	9.62
PTO	Diesel	0.11%	26.02	0.00	0.00	27.11
SBUS	Gasoline	0.03%	2.82	0.00	0.00	2.84
SBUS	Diesel	0.06%	8.16	0.00	0.00	8.50
SBUS	Natural Gas	0.01%	1.66	0.00	0.00	1.87
T6 CAIRP Class 4	Diesel	0.00%	0.47	0.00	0.00	0.49
T6 CAIRP Class 5	Diesel	0.01%	0.64	0.00	0.00	0.67
T6 CAIRP Class 6	Diesel	0.01%	1.67	0.00	0.00	1.74
T6 CAIRP Class 7	Diesel	0.08%	9.85	0.00	0.00	10.26
T6 Instate Delivery Class 4	Diesel	0.05%	5.97	0.00	0.00	6.23
T6 Instate Delivery Class 5	Diesel	0.03%	3.94	0.00	0.00	4.10
T6 Instate Delivery Class 6	Diesel	0.13%	16.96	0.00	0.00	17.67
T6 Instate Delivery Class 7	Diesel	0.04%	4.96	0.00	0.00	5.16
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.19	0.00	0.00	0.21
T6 Instate Other Class 4	Diesel	0.10%	12.63	0.00	0.00	13.16
T6 Instate Other Class 5	Diesel	0.28%	35.82	0.00	0.01	37.31
T6 Instate Other Class 6	Diesel	0.21%	26.34	0.00	0.00	27.45
T6 Instate Other Class 7	Diesel	0.14%	17.45	0.00	0.00	18.18
T6 Instate Other Class 7	Natural Gas	0.00%	0.33	0.00	0.00	0.35
T6 Instate Tractor Class 6	Diesel	0.00%	0.35	0.00	0.00	0.36
T6 Instate Tractor Class 7	Diesel	0.24%	28.83	0.00	0.00	30.03
T6 Instate Tractor Class 7	Natural Gas	0.00%	0.46	0.00	0.00	0.50
T6 OOS Class 4	Diesel	0.00%	0.27	0.00	0.00	0.28

Year 2020 Existing Conditions: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan Measure Documentation Supplement.

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**98,644,293**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T6 OOS Class 5	Diesel	0.00%	0.37	0.00	0.00	0.38
T6 OOS Class 6	Diesel	0.01%	0.96	0.00	0.00	1.00
T6 OOS Class 7	Diesel	0.06%	6.54	0.00	0.00	6.81
T6 Public Class 4	Diesel	0.01%	0.85	0.00	0.00	0.89
T6 Public Class 4	Natural Gas	0.00%	0.01	0.00	0.00	0.01
T6 Public Class 5	Diesel	0.02%	2.15	0.00	0.00	2.24
T6 Public Class 5	Natural Gas	0.00%	0.18	0.00	0.00	0.19
T6 Public Class 6	Diesel	0.03%	3.51	0.00	0.00	3.65
T6 Public Class 6	Natural Gas	0.00%	0.11	0.00	0.00	0.12
T6 Public Class 7	Diesel	0.04%	5.55	0.00	0.00	5.78
T6 Public Class 7	Natural Gas	0.00%	0.28	0.00	0.00	0.30
T6 Utility Class 5	Diesel	0.01%	0.95	0.00	0.00	0.99
T6 Utility Class 5	Natural Gas	0.00%	0.00	0.00	0.00	0.00
T6 Utility Class 6	Diesel	0.00%	0.18	0.00	0.00	0.19
T6 Utility Class 6	Natural Gas	0.00%	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	0.00%	0.25	0.00	0.00	0.27
T6 Utility Class 7	Natural Gas	0.00%	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.13%	28.27	0.00	0.00	28.50
T7 CAIRP Class 8	Diesel	1.66%	294.11	0.00	0.05	306.40
T7 NNOOS Class 8	Diesel	1.97%	350.66	0.00	0.06	365.32
T7 NOOS Class 8	Diesel	0.71%	126.37	0.00	0.02	131.66
T7 Other Port Class 8	Diesel	0.03%	5.15	0.00	0.00	5.37
T7 POAK Class 8	Diesel	0.07%	13.24	0.00	0.00	13.79
T7 POLA Class 8	Diesel	0.09%	17.38	0.00	0.00	18.11
T7 POLA Class 8	Natural Gas	0.00%	0.16	0.00	0.00	0.17
T7 Public Class 8	Diesel	0.09%	20.03	0.00	0.00	20.87
T7 Public Class 8	Natural Gas	0.01%	1.07	0.00	0.00	1.16
T7 Single Concrete/Transit Mix	Diesel	0.05%	9.32	0.00	0.00	9.71
T7 Single Concrete/Transit Mix	Natural Gas	0.00%	0.13	0.00	0.00	0.14
T7 Single Dump Class 8	Diesel	0.18%	32.77	0.00	0.01	34.14
T7 Single Dump Class 8	Natural Gas	0.01%	0.88	0.00	0.00	0.95
T7 Single Other Class 8	Diesel	0.31%	57.72	0.00	0.01	60.13
T7 Single Other Class 8	Natural Gas	0.01%	1.48	0.00	0.00	1.60
T7 SWCV Class 8	Diesel	0.07%	30.69	0.00	0.00	31.97
T7 SWCV Class 8	Natural Gas	0.03%	5.23	0.02	0.00	5.96
T7 Tractor Class 8	Diesel	1.14%	201.56	0.00	0.03	209.99
T7 Tractor Class 8	Natural Gas	0.02%	2.73	0.00	0.00	2.93
T7 Utility Class 8	Diesel	0.01%	1.17	0.00	0.00	1.22
T7IS	Gasoline	0.00%	0.10	0.00	0.00	0.11
UBUS	Gasoline	0.02%	4.13	0.00	0.00	4.15
UBUS	Diesel	0.04%	5.37	0.00	0.00	5.59
UBUS	Electricity	0.00%	0.00	0.00	0.00	0.00
UBUS	Natural Gas	0.01%	1.30	0.00	0.00	1.43
	Total	100.00%	5227.22	0.10	0.34	5320.25

Source: EMFAC2021 (v1.0.2) Emission Rates

Region Type: Sub-Area
Region: San Joaquin (SJV)
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

			g/mile															2.205E-03
Vehicle Category	Fuel	VMT Total	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM10_PMTW	PM10_PMBW	PM10_TOTAL	PM2.5_RUNEX	PM2.5_PMTW	PM2.5_PMBW	PM 2.5 Total	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX	% of VMT
All Other Buses	Diesel	3292.57	5.26E-01	5.88E+00	1.32E+00	1.13E-02	1.72E-01	1.20E-02	4.61E-02	2.30E-01	1.64E-01	3.00E-03	1.61E-02	1.83E-01	1.19E+03	2.44E-02	1.88E-01	0.02%
All Other Buses	Natural Gas	90.14	1.23E-02	5.85E-02	3.45E+00	0.00E+00	1.84E-03	1.20E-02	4.61E-02	6.00E-02	1.69E-03	3.00E-03	1.61E-02	2.08E-02	1.09E+03	8.62E-01	2.21E-01	0.00%
LDA	Gasoline	8295815.14	1.68E-02	7.05E-02	1.10E+00	3.01E-03	1.61E-03	8.00E-03	8.58E-03	1.82E-02	1.48E-03	2.00E-03	3.00E-03	6.48E-03	3.05E+02	4.01E-03	6.40E-03	47.50%
LDA	Diesel	23667.13	3.69E-02	3.46E-01	4.26E-01	2.30E-03	2.13E-02	8.00E-03	8.64E-03	3.79E-02	2.03E-02	2.00E-03	3.02E-03	2.54E-02	2.43E+02	1.71E-03	3.82E-02	0.14%
LDA	Electricity	111308.45	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	1.24E-02	0.00E+00	2.00E-03	1.53E-03	3.53E-03	0.00E+00	0.00E+00	0.00E+00	0.64%
LDA	Plug-in Hybrid	158315.88	1.78E-03	3.78E-03	2.69E-01	1.59E-03	9.97E-04	8.00E-03	4.07E-03	1.31E-02	9.17E-04	2.00E-03	1.42E-03	4.34E-03	1.61E+02	5.62E-04	6.84E-04	0.91%
LDT1	Gasoline	651862.23	6.05E-02	2.48E-01	2.65E+00	3.58E-03	2.93E-03	8.00E-03	1.04E-02	2.13E-02	2.69E-03	2.00E-03	3.64E-03	8.34E-03	3.62E+02	1.29E-02	1.62E-02	3.73%
LDT1	Diesel	93.14	3.07E-01	1.52E+00	1.75E+00	3.92E-03	2.49E-01	8.00E-03	1.18E-02	2.69E-01	2.38E-01	2.00E-03	4.14E-03	2.44E-01	4.14E+02	1.43E-02	6.52E-02	0.00%
LDT1	Electricity	236.69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.42E-03	1.24E-02	0.00E+00	2.00E-03	1.55E-03	3.55E-03	0.00E+00	0.00E+00	0.00E+00	0.00%
LDT1	Plug-in Hybrid	45.89	1.72E-03	3.67E-03	2.62E-01	1.54E-03	8.43E-04	8.00E-03	4.06E-03	1.29E-02	7.75E-04	2.00E-03	1.42E-03	4.20E-03	1.56E+02	5.49E-04	6.74E-04	0.00%
LDT2	Gasoline	3015418.19	2.21E-02	1.35E-01	1.37E+00	3.82E-03	1.71E-03	8.00E-03	9.97E-03	1.97E-02	1.58E-03	2.00E-03	3.49E-03	7.07E-03	3.86E+02	5.14E-03	9.41E-03	17.27%
LDT2	Diesel	7467.18	2.84E-02	9.30E-02	2.00E-01	3.16E-03	1.34E-02	8.00E-03	9.56E-03	3.09E-02	1.28E-02	2.00E-03	3.35E-03	1.81E-02	3.33E+02	1.32E-03	5.25E-02	0.04%
LDT2	Electricity	348.65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.35E-03	1.24E-02	0.00E+00	2.00E-03	1.52E-03	3.52E-03	0.00E+00	0.00E+00	0.00E+00	0.00%
LDT2	Plug-in Hybrid	6864.75	1.74E-03	3.70E-03	2.64E-01	1.56E-03	1.01E-03	8.00E-03	4.06E-03	1.31E-02	9.33E-04	2.00E-03	1.42E-03	4.35E-03	1.58E+02	5.54E-04	6.79E-04	0.04%
LHD1	Gasoline	300636.48	7.80E-02	3.21E-01	1.67E+00	9.49E-03	2.11E-03	8.00E-03	7.80E-02	8.81E-02	1.94E-03	2.00E-03	2.73E-02	3.12E-02	9.60E+02	1.50E-02	1.73E-02	1.72%
LHD1	Diesel	288320.75	2.44E-01	2.74E+00	7.20E-01	6.07E-03	5.57E-02	1.20E-02	7.80E-02	1.46E-01	5.32E-02	3.00E-03	2.73E-02	8.35E-02	6.41E+02	1.13E-02	1.01E-01	1.65%
LHD2	Gasoline	36404.43	5.69E-02	2.80E-01	1.35E+00	1.05E-02	1.89E-03	8.00E-03	9.10E-02	1.01E-01	1.74E-03	2.00E-03	3.19E-02	3.56E-02	1.06E+03	1.15E-02	1.54E-02	0.21%
LHD2	Diesel	101322.22	2.02E-01	2.02E+00	5.55E-01	7.42E-03	4.43E-02	1.20E-02	9.10E-02	1.47E-01	4.24E-02	3.00E-03	3.19E-02	7.72E-02	7.83E+02	9.40E-03	1.23E-01	0.58%
MCY	Gasoline	57751.87	1.55E+00	7.10E-01	1.68E+01	1.94E-03	1.94E-03	4.00E-03	1.20E-02	1.79E-02	1.82E-03	1.00E-03	4.20E-03	7.02E-03	1.96E+02	2.20E-01	4.55E-02	0.33%
MDV	Gasoline	2857015.57	3.58E-02	2.04E-01	1.71E+00	4.64E-03	1.75E-03	8.00E-03	1.03E-02	2.01E-02	1.61E-03	2.00E-03	3.61E-03	7.22E-03	4.69E+02	7.66E-03	1.29E-02	16.36%
MDV	Diesel	46817.04	1.98E-02	1.28E-01	3.00E-01	4.10E-03	8.80E-03	8.00E-03	9.77E-03	2.66E-02	8.42E-03	2.00E-03	3.42E-03	1.38E-02	4.33E+02	9.18E-04	6.82E-02	0.27%
MDV	Electricity	741.62	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.35E-03	1.23E-02	0.00E+00	2.00E-03	1.52E-03	3.52E-03	0.00E+00	0.00E+00	0.00E+00	0.00%
MDV	Plug-in Hybrid	10929.27	1.78E-03	3.79E-03	2.70E-01	1.59E-03	1.15E-03	8.00E-03	4.07E-03	1.32E-02	1.05E-03	2.00E-03	1.42E-03	4.48E-03	1.61E+02	5.62E-04	6.84E-04	0.06%
MH	Gasoline	13244.67	1.02E-01	5.47E-01	2.66E+00	1.93E-02	2.02E-03	1.20E-02	4.50E-02	5.91E-02	1.86E-03	3.00E-03	1.58E-02	2.06E-02	1.95E+03	2.16E-02	3.11E-02	0.08%
MH	Diesel	5028.04	1.44E-01	5.36E+00	4.99E-01	1.02E-02	1.46E-01	1.60E-02	4.48E-02	2.07E-01	1.39E-01	4.00E-03	1.57E-02	1.59E-01	1.08E+03	6.68E-03	1.70E-01	0.03%
Motor Coach	Diesel	2463.51	8.56E-02	3.01E+00	3.36E-01	1.67E-02	6.60E-02	1.20E-02	7.70E-02	1.55E-01	6.31E-02	3.00E-03	2.69E-02	9.31E-02	1.76E+03	3.98E-03	2.78E-01	0.01%
OBUS	Gasoline	8117.68	1.30E-01	9.53E-01	2.98E+00	1.84E-02	9.34E-04	1.20E-02	4.49E-02	5.78E-02	8.59E-04	3.00E-03	1.57E-02	1.96E-02	1.86E+03	2.63E-02	4.16E-02	0.05%
PTO	Diesel	19058.50	1.25E-01	4.08E+00	5.02E-01	2.04E-02	2.65E-02	0.00E+00	0.00E+00	2.65E-02	2.54E-02	0.00E+00	0.00E+00	2.54E-02	2.16E+03	5.81E-03	3.40E-01	0.11%
SBUS	Gasoline	5540.51	2.88E-02	2.39E-01	6.78E-01	7.94E-03	1.09E-03	8.00E-03	4.49E-02	5.40E-02	9.99E-04	2.00E-03	1.57E-02	1.87E-02	8.04E+02	6.09E-03	1.66E-02	0.03%
SBUS	Diesel	11166.50	8.21E-02	5.37E+00	2.38E-01	1.09E-02	3.07E-02	1.20E-02	4.49E-02	8.76E-02	2.94E-02	3.00E-03	1.57E-02	4.81E-02	1.15E+03	3.81E-03	1.82E-01	0.06%
SBUS	Natural Gas	2069.97	4.61E-02	4.93E-01	1.07E+01	0.00E+00	3.67E-03	1.20E-02	4.49E-02	6.06E-02	3.38E-03	3.00E-03	1.57E-02	2.21E-02	1.27E+03	3.23E+00	2.59E-01	0.01%
T6 CAIRP Class 4	Diesel	652.11	4.42E-02	1.28E+00	1.77E-01	1.08E-02	4.13E-02	1.20E-02	4.23E-02	9.56E-02	3.95E-02	3.00E-03	1.48E-02	5.73E-02	1.14E+03	2.05E-03	1.80E-01	0.00%
T6 CAIRP Class 5	Diesel	894.58	3.07E-02	1.03E+00	1.34E-01	1.08E-02	3.11E-02	1.20E-02	4.23E-02	8.54E-02	2.98E-02	3.00E-03	1.48E-02	4.76E-02	1.14E+03	1.43E-03	1.79E-01	0.01%
T6 CAIRP Class 6	Diesel	2337.55	4.05E-02	1.20E+00	1.63E-01	1.07E-02	3.82E-02	1.20E-02	4.23E-02	9.25E-02	3.65E-02	3.00E-03	1.48E-02	5.44E-02	1.13E+03	1.88E-03	1.78E-01	0.01%
T6 CAIRP Class 7	Diesel	14662.31	4.05E-02	1.42E+00	1.71E-01	1.00E-02	3.80E-02	1.20E-02	4.23E-02	9.23E-02	3.64E-02	3.00E-03	1.48E-02	5.42E-02	1.06E+03	1.88E-03	1.67E-01	0.08%
T6 Instate Delivery Class 4	Diesel	7879.97	2.26E-01	3.49E+00	6.23E-01	1.13E-02	8.52E-02	1.20E-02	4.76E-02	1.45E-01	8.15E-02	3.00E-03	1.66E-02	1.01E-01	1.20E+03	1.05E-02	1.89E-01	0.05%
T6 Instate Delivery Class 5	Diesel	5125.53	2.28E-01	3.44E+00	6.22E-01	1.15E-02	8.62E-02	1.20E-02	4.76E-02	1.46E-01	8.24E-02	3.00E-03	1.66E-02	1.02E-01	1.21E+03	1.06E-02	1.91E-01	0.03%
T6 Instate Delivery Class 6	Diesel	22243.78	2.40E-01	3.54E+00	6.53E-01	1.14E-02	9.90E-02	1.20E-02	4.76E-02	1.59E-01	9.48E-02	3.00E-03	1.66E-02	1.14E-01	1.20E+03	1.12E-02	1.90E-01	0.13%
T6 Instate Delivery Class 7	Diesel	6407.53	1.21E-01	2.92E+00	3.42E-01	1.16E-02	3.04E-02	1.20E-02	4.76E-02	9.00E-02	2.91E-02	3.00E-03	1.66E-02	4.87E-02	1.22E+03	5.61E-03	1.92E-01	0.04%
T6 Instate Delivery Class 7	Natural Gas	274.18	1.25E-02	5.98E-02	3.82E+00	0.00E+00	2.02E-03	1.20E-02	4.76E-02	6.16E-02	1.86E-03	3.00E-03	1.66E-02	2.15E-02	1.11E+03	8.73E-01	2.26E-01	0.00%
T6 Instate Other Class 4	Diesel	17513.01	2.54E-01	4.26E+00	7.43E-01	1.08E-02	1.32E-01	1.20E-02	4.49E-02	1.88E-01	1.26E-01	3.00E-03	1.57E-02	1.45E-01	1.14E+03	1.18E-02	1.79E-01	0.10%
T6 Instate Other Class 5	Diesel	49445.13	7.51E-02	1.61E+00	2.49E-01	1.08E-02	3.89E-02	1.20E-02	4.49E-02	9.58E-02	3.72E-02	3.00E-03	1.57E-02	5.59E-02	1.14E+03	3.49E-03	1.80E-01	0.28%
T6 Instate Other Class 6	Diesel	36724.76	1.79E-01	3.08E+00	5.32E-01	1.07E-02	9.45E-02	1.20E-02	4.49E-02	1.51E-01	9.04E-02	3.00E-03	1.57E-02	1.09E-01	1.13E+03	8.29E-03	1.78E-01	0.21%
T6 Instate Other Class 7	Diesel	24499.27	9.03E-02	2.45E+00	2.93E-01	1.07E-02	4.28E-02	1.20E-02	4.49E-02	9.97E-02	4.09E-02	3.00E-03	1.57E-02	5.96E-02	1.12E+03	4.19E-03	1.77E-01	0.14%
T6 Instate Other Class 7	Natural Gas	533.38	9.95E-03	5.32E-02	2.67E+00	0.00E+00	1.55E-03	1.20E-02	4.49E-02	5.84E-02	1.43E-03	3.00E-03	1.57E-02	2.01E-02	9.68E+02	6.97E-01	1.97E-01	0.00%
T6 Instate Tractor Class 6	Diesel	486.22	2.90E-01	4.21E+00	8.57E-01	1.07E-02	1.62E-01	1.20E-02	4.49E-02	2.18E-01	1.55E-01	3.00E-03	1.57E-02	1.73E-01	1.13E+03	1.35E-02	1.78E-01	0.00%
T6 Instate Tractor Class 7	Diesel	41207.48	1.02E-01	2.93E+00	3.04E-01	1.05E-02	3.57E-02	1.20E-02	4.49E-02	9.25E-02	3.41E-02	3.00E-03	1.57E-02	5.28E-02	1.10E+03	4.75E-03	1.74E-01	0.24%
T6 Instate Tractor Class 7	Natural Gas	756.46	9.95E-03	5.30E-02	2.67E+00	0.00E+00	1.55E-03	1.20E-02	4.49E-02	5.84E-02	1.43E-03	3.00E-03	1.57E-02	2.01E-02	9.68E+02	6.97E-01	1.97E-01	0.00%
T6 OOS Class 4	Diesel	373.36	4.61E-02	1.32E+00	1.83E-01	1.08E-02	4.27E-02	1.20E-02	4.23E-02	9.70E-02	4.09E-02	3.00E-03	1.48E-02	5.87E-02	1.14E+03	2.14E-03	1.79E-01	0.00%
T6 OOS Class 5	Diesel	512.19	3.15E-02	1.05E+00	1.37E-01	1.08E-02	3.19E-02	1.20E-02	4.23E-02	8.62E-02	3.05E-02	3.00E-03	1.48E-02	4.84E-02	1.14E+03	1.46E-03	1.79E-01	0.00%
T6 OOS Class 6	Diesel	1338.36	4.24E-02	1.24E+00	1.69E-01	1.07E-02	3.96E-02	1.20E-02	4.23E-02	9.39E-02	3.79E-02	3.00E-03	1.48E-02	5.57E-02	1.13E+03	1.97E-03	1.78E-01	0.01%
T6 OOS Class 7	Diesel	9731.52	4.58E-02	1.48E+00	1.92E-01	1.00E-02	4.27E-02	1.20E-02	4.23E-02	9.70E-02	4.09E-02	3.00E-03	1.48E-02	5.87E-02	1.06E+03	2.13E-03	1.67E-01	0.06%
T6 Public Class 4	Diesel	1049.30	1.02E-01	8.58E+00	2.33E-01	1.22E-02	4.26E-02	1.20E-02	4.62E-02	1.01E-01	4.08E-02	3.00E-03	1.62E-02	5.99E-02	1.29E+03	4.72E-03	2.03E-01	0.01%
T6 Public Class 4	Natural Gas	16.02	1.24E-02	9.62E-02	3.05E+00	0.00E+00	1.62E-03	1.20E-02	4.62E-02	5.98E-02	1.49E-03	3.00E-03	1.62E-02	2.06E-02	1.07E+03	8.67E-01	2.18E-01	0.00%
T6 Public Class 5	Diesel	2715.26	6.19E-02	3.73E+00	1.74E-01	1.18E-02	1.85E-02	1.20E-02	4.62E-02	7.66E-02	1.77E-02	3.00E-03	1.62E-02	3.68E-02	1.25E+03	2.87E-03	1.97E-01	0.02%
T6 Public Class 5	Natural Gas	269.59	1.16E-02	2.26E-01	3.08E+00	0.00E+00	1.00E-03	1.20E-02	4.62E-02	5.92E-02	9.20E-04	3.00E-03	1.62E-02	2.01E-02	1.04E+03	8.12E-01	2.11E-01	0.00%
T6 Public Class 6	Diesel	4397.15	1.03E-01	7.11E+00	2.39E-01	1.19E-02	4.72E-02	1.20E-02	4.62E-02	1.05E-01	4.51E-02	3.00E-03	1.62E-02	6.43E-02	1.26E+03	4.80E-03	1.98E-01	0.03%
T6 Public Class 6	Natural Gas	159.74	1.22E-02	1.34E-01	3.05E+00	0.00E+00	1.44E-03	1.20E-02	4.62E-02	5.96E-02	1.32E-03	3.00E-03	1.62E-02	2.05E-02	1.07E+03	8.51E-01	2.18E-01	0.00%
T6 Public Class 7	Diesel	6685.18	1.37E-01	8.42E+00	2.90E-01	1.24E-02	6.82E-02	1.20E-02	4.62E-02	1.26E-01	6.53E-02	3.00E-03	1.62E-02	8.44E-02	1.31E+03	6.37E-03	2.07E-01	0.04%
T6 Public Class 7	Natural Gas	417.76	1.21E-02	1.44E-01	3.05E+00	0.00E+00	1.39E-03	1.20E-02	4.62E-02	5.96E-02	1.28E-03	3.00E-03	1.62E-02	2.04E-02	1.06E+03	8.47E-01	2.15E-01	0.00%
T6 Utility Class 5	Diesel	1313.75	2.12E-02	1.11E+00	8.64E-02	1.08E-02	5.41E-03	1.20E-02	4.55E-02	6.29E-02	5.18E-03	3.00E-03	1.59E-02	2.41E-02	1.14E+03	9.87E-04	1.80E-01	0.01%
T6 Utility Class 5	Natural Gas	3.35	9.52E-03	2.49E-01	2.88E+00	0.00E+00	6.30E-04	1.20E-02	4.55E-02	5.81E-02	5.79E-04	3.00E-03	1.59E-02	1.95E-02	1.01E+03	6.66E-01	2.07E-01	0.00%
T6 Utility Class 6	Diesel	247.78	3.13E-02	1.72E+00	1.09E-01	1.10E-02	8.88E-03	1.20E-02	4.55E-02	6.64E-02	8.50E-03	3.00E-03	1.59E-02	2.74E-02	1.17E+03	1.45E-03	1.84E-01	0.00%
T6 Utility Class 6	Natural Gas	1.12	9.47E-03	2.56E-01	2.88E+00	0.00E+00	5.95E-04	1.20E-02	4.55E-02	5.81E-02	5.47E-04	3.00E-03	1.59E-02	1.95E-02	1.01E+03	6.63E-01	2.07E-01	0.00%
T6 Utility Class 7	Diesel	345.75	2.33E-02	1.56E+00	8.80E-02	1.10E-02	8.43E-03	1.20E-02	4.55E-02	6.59E-02	8.07E-03	3.00E-03	1.59E-02	2.70E-02	1.16E+03	1.08E-03	1.83E-01	0.00%
T6 Utility Class 7	Natural Gas	0.56	9.74E-03	2.23E-01	2.86E+00	0.00E+00	7.62E-04	1.20E-02	4.55E-02	5.83E-02	7.01E-04	3.00E-03	1.59E-02	1.96E-02	1.01E+03	6.81E-01	2.06E-01	0.00%
T6TS	Gasoline	23577.18	2.45E-01	1.28E+00	5.39E+00	1.87E-02	2.04E-03	1.20E-02	4.50E-02	5.91E-02	1.87E-03	3.00E-03	1.58E-02	2.06E-02	1.89E+03	4.58E-02	5.26E-02	0.13%
T7 CAIRP Class 8	Diesel	290330.14	5.07E-02	2.77E+00	1.99E-01	1.51E-02	4.80E-02	3.60E-02	7.60E-02	1.60E-01	4.59E-02	9.00E-03	2.66E-02	8.15E-02	1.60E+03	2.36E-03	2.52E-01	1.66%
T7 NNOOS Class 8	Diesel	343259.74	8.78E-02	2.88E+00	3.75E-01	1.53E-02	7.95E-02	3.60E-02	7.67E-02	1.92E-01	7.61E-02	9.00E-03	2.69E-02	1.12E-01	1.61E+03	4.08E-03	2.54E-01	1.97%
T7 NOOS Class 8	Diesel	124700.16	5.73E-02	2.87E+00	2.24E-01	1.52E-02	5.19E-02	3.60E-02	7.61E-02	1.64E-01	4.96E-02	9.00E-03	2.66E-02	8.53E-02	1.60E+03	2.66E-03	2.52E-01	0.71%
T7 Other Port Class 8	Diesel	4759.90	1.01E-01	4.07E+00	3.38E-01	1.62E-02	2.77E-02	3.60E-02	9.22E-02	1.56E-01	2.65E-02	9.00E-03	3.23E-02	6.77E-02	1.71E+03	4.70E-03	2.69E-01	0.03%
T7 POAK Class 8	Diesel	12221.93	1.19E-01	4.44E+00	3.92E-01	1.62E-02	3.29E-02	3.60E-02	9.38E-02	1.63E-01	3.15E-02	9.00E-03	3.28E-02	7.33E-02	1.71E+03	5.51E-03	2.69E-01	0.07%
T7 POLA Class 8	Diesel	15960.25	1.26E-01	4.74E+00	4.01E-01	1.63E-02	3.00E-02	3.60E-02	9.44E-02	1.60E-01	2.87E-02	9.00E-03	3.31E-02	7.07E-02	1.72E+03	5.87E-03	2.71E-01	0.09%
T7 POLA Class 8	Natural Gas	168.74	1.70E-02	7.06E-01	1.10E+01	0.00E+00	1.36E-03	3.60E-02	1.14E-01	1.52E-01	1.25E-03	9.00E-03	4.00E-02	5.02E-02	1.49E+03	1.19E+00	3.04E-01	0.00%
T7 Public Class 8	Diesel	16144.32	1.58E-01	1.16E+01	5.09E-01	1.86E-02	7.60E-02	3.60E-02	1.19E-01	2.31E-01	7.27E-02	9.00E-03	4.18E-02	1.23E-01	1.96E+03	7.32E-03	3.09E-01	0.09%
T7 Public Class 8	Natural Gas	1021.49	2.60E-02	7.25E-01	1.05E+01	0.00E+00	2.51E-03	3.60E-02	1.05E-01	1.44E-01	2.31E-03	9.00E-03	3.69E-02	4.82E-02	1.66E+03	1.82E+00	3.38E-01	0.01%
T7 Single Concrete/Transit M	Diesel	8612.39	4.59E-02	1.67E+00	2.00E-01	1.62E-02	4.07E-02	3.60E-02	8.23E-02	1.59E-01	3.90E-02	9.00E-03	2.88E-02	7.68E-02	1.71E+03	2.13E-03	2.69E-01	0.05%
T7 Single Concrete/Transit M	Natural Gas	160.53	1.51E-02	4.33E-01	7.73E+00	0.00E+00	1.66E-03	3.60E-02	8.07E-02	1.18E-01	1.52E-03	9.00E-03	2.82E-02	3.88E-02	1.30E+03	1.06E+00	2.66E-01	0.00%
T7 Single Dump Class 8	Diesel	30628.30	5.55E-02	2.56E+00	2.23E-01	1.60E-02	3.77E-02	3.60E-02	8.37E-02	1.57E-01	3.61E-02	9.00E-03	2.93E-02	7.44E-02	1.69E+03	2.58E-03	2.66E-01	0.18%
T7 Single Dump Class 8	Natural Gas	1035.36	1.51E-02	4.72E-01	8.26E+00	0.00E+00	1.57E-03	3.60E-02	8.21E-02	1.20E-01	1.44E-03	9.00E-03	2.87E-02	3.92E-02	1.34E+03	1.06E+00	2.74E-01	0.01%
T7 Single Other Class 8	Diesel	53794.86	5.73E-02	2.43E+00	2.23E-01	1.60E-02	3.74E-02	3.60E-02	8.35E-02	1.57E-01	3.58E-02	9.00E-03	2.92E-02	7.40E-02	1.69E+03	2.66E-03	2.67E-01	0.31%
T7 Single Other Class 8	Natural Gas	1750.97	1.51E-02	4.65E-01	8.15E+00	0.00E+00	1.59E-03	3.60E-02	8.24E-02	1.20E-01	1.46E-03	9.00E-03	2.89E-02	3.93E-02	1.34E+03	1.06E+00	2.73E-01	0.01%
T7 SWCV Class 8	Diesel	11841.68	2.31E-02	9.53E+00	6.21E-02	3.88E-02	1.66E-02	3.60E-02	2.10E-01	2.63E-01	1.59E-02	9.00E-03	7.35E-02	9.84E-02	4.09E+03	1.08E-03	6.45E-01	0.07%
T7 SWCV Class 8	Natural Gas	4517.74	2.68E-01	4.35E+00	2.20E+01	0.00E+00	8.70E-03	3.60E-02	2.10E-01	2.55E-01	8.00E-03	9.00E-03	7.35E-02	9.05E-02	1.83E+03	5.53E+00	3.73E-01	0.03%
T7 Tractor Class 8	Diesel	199832.71	7.26E-02	3.27E+00	2.75E-01	1.51E-02	4.56E-02	3.60E-02	8.25E-02	1.64E-01	4.36E-02	9.00E-03	2.89E-02	8.15E-02	1.59E+03	3.37E-03	2.51E-01	1.14%
T7 Tractor Class 8	Natural Gas	3328.38	1.43E-02	4.77E-01	8.41E+00	0.00E+00	1.44E-03	3.60E-02	7.89E-02	1.16E-01	1.33E-03	9.00E-03	2.76E-02	3.79E-02	1.29E+03	1.00E+00	2.64E-01	0.02%
T7 Utility Class 8	Diesel	1039.99	3.90E-02	2.37E+00	1.92E-01	1.68E-02	1.09E-02	3.60E-02	9.80E-02	1.45E-01	1.05E-02	9.00E-03	3.43E-02	5.38E-02	1.78E+03	1.81E-03	2.80E-01	0.01%
T7IS	Gasoline	54.75	5.27E+00	2.41E+01	3.15E+02	2.97E-02	1.31E-02	2.00E-02	1.16E-01	1.49E-01	1.20E-02	5.00E-03	4.05E-02	5.76E-02	3.00E+03	7.82E-01	4.75E-01	0.00%
UBUS	Gasoline	3578.82	1.29E-02	1.96E-01	2.62E-01	1.80E-02	1.19E-03	1.20E-02	1.10E-01	1.23E-01	1.10E-03	3.00E-03	3.85E-02	4.26E-02	1.82E+03	3.94E-03	1.83E-02	0.02%
UBUS	Diesel	7124.18	6.80E-02	2.05E+00	2.00E-01	1.13E-02	7.32E-03	2.79E-02	1.10E-01	1.45E-01	7.01E-03	6.98E-03	3.85E-02	5.25E-02	1.19E+03	3.16E-03	1.88E-01	0.04%
UBUS	Electricity	766.36	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.56E-02	5.50E-02	9.06E-02	0.00E+00	8.89E-03	1.93E-02	2.81E-02	0.00E+00	0.00E+00	0.00E+00	0.00%
UBUS	Natural Gas	1932.92	3.51E-02	2.09E-01	2.06E+01	0.00E+00	3.44E-04	1.95E-02	1.10E-01	1.30E-01	3.29E-04	4.88E-03	3.84E-02	4.36E-02	1.06E+03	1.88E+00	2.16E-01	0.01%
	Total	**17,464,819**															Total	**100%**

Source: EMFAC2021 (v1.0.2) Emis

Region Type: Sub-Area
Region: San Joaquin (SJV)
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day

		lbs/Mile															1.000E-06
Vehicle Category	Fuel	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX	
All Other Buses	Diesel	1.160E-03	1.297E-02	2.914E-03	2.488E-05	3.785E-04	2.646E-05	1.017E-04	5.067E-04	3.622E-04	6.614E-06	3.560E-05	4.044E-04	2.628E+00	5.386E-05	4.140E-04	
All Other Buses	Natural Gas	2.716E-05	1.290E-04	7.604E-03	0.000E+00	4.054E-06	2.646E-05	1.017E-04	1.322E-04	3.727E-06	6.614E-06	3.560E-05	4.594E-05	2.395E+00	1.901E-03	4.882E-04	
LDA	Gasoline	3.693E-05	1.554E-04	2.420E-03	6.641E-06	3.548E-06	1.764E-05	1.892E-05	4.010E-05	3.262E-06	4.409E-06	6.622E-06	1.429E-05	6.717E-01	8.850E-06	1.412E-05	
LDA	Diesel	8.132E-05	7.629E-04	9.386E-04	5.069E-06	4.685E-05	1.764E-05	1.904E-05	8.353E-05	4.483E-05	4.409E-06	6.664E-06	5.590E-05	5.349E-01	3.777E-06	8.428E-05	
LDA	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.613E-06	2.725E-05	0.000E+00	4.409E-06	3.365E-06	7.774E-06	0.000E+00	0.000E+00	0.000E+00	
LDA	Plug-in Hybrid	3.919E-06	8.337E-06	5.931E-04	3.503E-06	2.199E-06	1.764E-05	8.972E-06	2.881E-05	2.022E-06	4.409E-06	3.140E-06	9.571E-06	3.544E-01	1.239E-06	1.509E-06	
LDT1	Gasoline	1.333E-04	5.461E-04	5.851E-03	7.894E-06	6.457E-06	1.764E-05	2.294E-05	4.704E-05	5.938E-06	4.409E-06	8.030E-06	1.838E-05	7.985E-01	2.842E-05	3.571E-05	
LDT1	Diesel	6.779E-04	3.347E-03	3.866E-03	8.645E-06	5.484E-04	1.764E-05	2.606E-05	5.921E-04	5.247E-04	4.409E-06	9.122E-06	5.382E-04	9.123E-01	3.149E-05	1.437E-04	
LDT1	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.752E-06	2.739E-05	0.000E+00	4.409E-06	3.413E-06	7.822E-06	0.000E+00	0.000E+00	0.000E+00	
LDT1	Plug-in Hybrid	3.800E-06	8.083E-06	5.776E-04	3.402E-06	1.858E-06	1.764E-05	8.955E-06	2.845E-05	1.708E-06	4.409E-06	3.134E-06	9.252E-06	3.441E-01	1.211E-06	1.486E-06	
LDT2	Gasoline	4.862E-05	2.977E-04	3.021E-03	8.424E-06	3.779E-06	1.764E-05	2.198E-05	4.340E-05	3.475E-06	4.409E-06	7.693E-06	1.558E-05	8.521E-01	1.134E-05	2.075E-05	
LDT2	Diesel	6.252E-05	2.050E-04	4.420E-04	6.961E-06	2.943E-05	1.764E-05	2.109E-05	6.816E-05	2.816E-05	4.409E-06	7.380E-06	3.995E-05	7.346E-01	2.904E-06	1.157E-04	
LDT2	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.591E-06	2.723E-05	0.000E+00	4.409E-06	3.357E-06	7.766E-06	0.000E+00	0.000E+00	0.000E+00	
LDT2	Plug-in Hybrid	3.839E-06	8.167E-06	5.831E-04	3.436E-06	2.236E-06	1.764E-05	8.958E-06	2.883E-05	2.056E-06	4.409E-06	3.135E-06	9.600E-06	3.475E-01	1.222E-06	1.496E-06	
LHD1	Gasoline	1.720E-04	7.075E-04	3.675E-03	2.092E-05	4.662E-06	1.764E-05	1.720E-04	1.943E-04	4.287E-06	4.409E-06	6.019E-05	6.888E-05	2.116E+00	3.317E-05	3.816E-05	
LHD1	Diesel	5.374E-04	6.039E-03	1.588E-03	1.338E-05	1.227E-04	2.646E-05	1.720E-04	3.211E-04	1.174E-04	6.614E-06	6.019E-05	1.842E-04	1.412E+00	2.496E-05	2.225E-04	
LHD2	Gasoline	1.255E-04	6.173E-04	2.968E-03	2.304E-05	4.177E-06	1.764E-05	2.006E-04	2.224E-04	3.841E-06	4.409E-06	7.022E-05	7.847E-05	2.331E+00	2.546E-05	3.400E-05	
LHD2	Diesel	4.460E-04	4.453E-03	1.223E-03	1.635E-05	9.769E-05	2.646E-05	2.006E-04	3.248E-04	9.346E-05	6.614E-06	7.022E-05	1.703E-04	1.726E+00	2.072E-05	2.719E-04	
MCY	Gasoline	3.418E-03	1.566E-03	3.699E-02	4.273E-06	4.271E-06	8.818E-06	2.646E-05	3.954E-05	4.012E-06	2.205E-06	9.259E-06	1.548E-05	4.323E-01	4.844E-04	1.003E-04	
MDV	Gasoline	7.899E-05	4.496E-04	3.777E-03	1.022E-05	3.860E-06	1.764E-05	2.273E-05	4.422E-05	3.550E-06	4.409E-06	7.954E-06	1.591E-05	1.034E+00	1.688E-05	2.838E-05	
MDV	Diesel	4.356E-05	2.813E-04	6.624E-04	9.047E-06	1.940E-05	1.764E-05	2.154E-05	5.858E-05	1.856E-05	4.409E-06	7.537E-06	3.051E-05	9.548E-01	2.023E-06	1.504E-04	
MDV	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.585E-06	2.722E-05	0.000E+00	4.409E-06	3.355E-06	7.764E-06	0.000E+00	0.000E+00	0.000E+00	
MDV	Plug-in Hybrid	3.925E-06	8.349E-06	5.949E-04	3.510E-06	2.526E-06	1.764E-05	8.962E-06	2.913E-05	2.323E-06	4.409E-06	3.137E-06	9.869E-06	3.551E-01	1.240E-06	1.509E-06	
MH	Gasoline	2.256E-04	1.205E-03	5.867E-03	4.254E-05	4.447E-06	2.646E-05	9.931E-05	1.302E-04	4.094E-06	6.614E-06	3.476E-05	4.547E-05	4.303E+00	4.755E-05	6.858E-05	
MH	Diesel	3.172E-04	1.182E-02	1.100E-03	2.254E-05	3.213E-04	3.527E-05	9.886E-05	4.554E-04	3.074E-04	8.818E-06	3.460E-05	3.508E-04	2.378E+00	1.473E-05	3.747E-04	
Motor Coach	Diesel	1.887E-04	6.642E-03	7.407E-04	3.679E-05	1.455E-04	2.646E-05	1.696E-04	3.416E-04	1.392E-04	6.614E-06	5.938E-05	2.052E-04	3.885E+00	8.767E-06	6.122E-04	
OBUS	Gasoline	2.874E-04	2.100E-03	6.572E-03	4.052E-05	2.060E-06	2.646E-05	9.896E-05	1.275E-04	1.894E-06	6.614E-06	3.463E-05	4.314E-05	4.099E+00	5.788E-05	9.167E-05	
PTO	Diesel	2.759E-04	9.000E-03	1.107E-03	4.501E-05	5.843E-05	0.000E+00	0.000E+00	5.843E-05	5.590E-05	0.000E+00	0.000E+00	5.590E-05	4.753E+00	1.281E-05	7.488E-04	
SBUS	Gasoline	6.352E-05	5.277E-04	1.495E-03	1.751E-05	2.396E-06	1.764E-05	9.902E-05	1.191E-04	2.203E-06	4.409E-06	3.466E-05	4.127E-05	1.771E+00	1.342E-05	3.664E-05	
SBUS	Diesel	1.810E-04	1.184E-02	5.245E-04	2.408E-05	6.771E-05	2.646E-05	9.902E-05	1.932E-04	6.478E-05	6.614E-06	3.466E-05	1.061E-04	2.543E+00	8.406E-06	4.006E-04	
SBUS	Natural Gas	1.016E-04	1.087E-03	2.351E-02	0.000E+00	8.100E-06	2.646E-05	9.902E-05	1.336E-04	7.448E-06	6.614E-06	3.466E-05	4.872E-05	2.800E+00	7.114E-03	5.707E-04	
T6 CAIRP Class 4	Diesel	9.741E-05	2.820E-03	3.893E-04	2.379E-05	9.101E-05	2.646E-05	9.329E-05	2.107E-04	8.707E-05	6.614E-06	3.265E-05	1.263E-04	2.512E+00	4.524E-06	3.958E-04	
T6 CAIRP Class 5	Diesel	6.769E-05	2.279E-03	2.952E-04	2.371E-05	6.857E-05	2.646E-05	9.329E-05	1.883E-04	6.561E-05	6.614E-06	3.265E-05	1.049E-04	2.504E+00	3.144E-06	3.944E-04	
T6 CAIRP Class 6	Diesel	8.935E-05	2.647E-03	3.583E-04	2.357E-05	8.420E-05	2.646E-05	9.329E-05	2.039E-04	8.056E-05	6.614E-06	3.265E-05	1.198E-04	2.489E+00	4.150E-06	3.922E-04	
T6 CAIRP Class 7	Diesel	8.930E-05	3.133E-03	3.764E-04	2.214E-05	8.376E-05	2.646E-05	9.329E-05	2.035E-04	8.014E-05	6.614E-06	3.265E-05	1.194E-04	2.338E+00	4.148E-06	3.684E-04	
T6 Instate Delivery Class 4	Diesel	4.989E-04	7.685E-03	1.372E-03	2.500E-05	1.879E-04	2.646E-05	1.049E-04	3.192E-04	1.798E-04	6.614E-06	3.670E-05	2.231E-04	2.640E+00	2.317E-05	4.159E-04	
T6 Instate Delivery Class 5	Diesel	5.031E-04	7.577E-03	1.371E-03	2.532E-05	1.900E-04	2.646E-05	1.049E-04	3.213E-04	1.818E-04	6.614E-06	3.670E-05	2.251E-04	2.674E+00	2.337E-05	4.213E-04	
T6 Instate Delivery Class 6	Diesel	5.298E-04	7.802E-03	1.440E-03	2.514E-05	2.184E-04	2.646E-05	1.049E-04	3.497E-04	2.089E-04	6.614E-06	3.670E-05	2.522E-04	2.654E+00	2.461E-05	4.182E-04	
T6 Instate Delivery Class 7	Diesel	2.663E-04	6.440E-03	7.540E-04	2.550E-05	6.705E-05	2.646E-05	1.049E-04	1.984E-04	6.415E-05	6.614E-06	3.670E-05	1.075E-04	2.692E+00	1.237E-05	4.242E-04	
T6 Instate Delivery Class 7	Natural Gas	2.750E-05	1.319E-04	8.419E-03	0.000E+00	4.449E-06	2.646E-05	1.049E-04	1.358E-04	4.091E-06	6.614E-06	3.670E-05	4.740E-05	2.449E+00	1.925E-03	4.992E-04	
T6 Instate Other Class 4	Diesel	5.608E-04	9.383E-03	1.637E-03	2.378E-05	2.900E-04	2.646E-05	9.891E-05	4.153E-04	2.774E-04	6.614E-06	3.462E-05	3.186E-04	2.511E+00	2.605E-05	3.957E-04	
T6 Instate Other Class 5	Diesel	1.656E-04	3.559E-03	5.488E-04	2.388E-05	8.575E-05	2.646E-05	9.891E-05	2.111E-04	8.204E-05	6.614E-06	3.462E-05	1.233E-04	2.522E+00	7.692E-06	3.973E-04	
T6 Instate Other Class 6	Diesel	3.936E-04	6.798E-03	1.172E-03	2.365E-05	2.084E-04	2.646E-05	9.891E-05	3.337E-04	1.993E-04	6.614E-06	3.462E-05	2.406E-04	2.497E+00	1.828E-05	3.934E-04	
T6 Instate Other Class 7	Diesel	1.990E-04	5.404E-03	6.451E-04	2.348E-05	9.435E-05	2.646E-05	9.891E-05	2.197E-04	9.027E-05	6.614E-06	3.462E-05	1.315E-04	2.480E+00	9.245E-06	3.907E-04	
T6 Instate Other Class 7	Natural Gas	2.194E-05	1.174E-04	5.892E-03	0.000E+00	3.419E-06	2.646E-05	9.891E-05	1.288E-04	3.144E-06	6.614E-06	3.462E-05	4.437E-05	2.134E+00	1.536E-03	4.351E-04	
T6 Instate Tractor Class 6	Diesel	6.400E-04	9.283E-03	1.890E-03	2.362E-05	3.562E-04	2.646E-05	9.891E-05	4.816E-04	3.408E-04	6.614E-06	3.462E-05	3.820E-04	2.495E+00	2.972E-05	3.930E-04	
T6 Instate Tractor Class 7	Diesel	2.254E-04	6.469E-03	6.711E-04	2.306E-05	7.867E-05	2.646E-05	9.891E-05	2.040E-04	7.527E-05	6.614E-06	3.462E-05	1.165E-04	2.436E+00	1.047E-05	3.837E-04	
T6 Instate Tractor Class 7	Natural Gas	2.195E-05	1.168E-04	5.892E-03	0.000E+00	3.422E-06	2.646E-05	9.891E-05	1.288E-04	3.146E-06	6.614E-06	3.462E-05	4.438E-05	2.134E+00	1.536E-03	4.351E-04	
T6 OOS Class 4	Diesel	1.015E-04	2.903E-03	4.024E-04	2.378E-05	9.413E-05	2.646E-05	9.329E-05	2.139E-04	9.006E-05	6.614E-06	3.265E-05	1.293E-04	2.511E+00	4.716E-06	3.956E-04	
T6 OOS Class 5	Diesel	6.953E-05	2.314E-03	3.027E-04	2.370E-05	7.038E-05	2.646E-05	9.329E-05	1.901E-04	6.733E-05	6.614E-06	3.265E-05	1.066E-04	2.503E+00	3.230E-06	3.943E-04	
T6 OOS Class 6	Diesel	9.350E-05	2.732E-03	3.715E-04	2.357E-05	8.733E-05	2.646E-05	9.329E-05	2.071E-04	8.356E-05	6.614E-06	3.265E-05	1.228E-04	2.489E+00	4.343E-06	3.921E-04	
T6 OOS Class 7	Diesel	1.009E-04	3.261E-03	4.240E-04	2.215E-05	9.419E-05	2.646E-05	9.329E-05	2.139E-04	9.012E-05	6.614E-06	3.265E-05	1.294E-04	2.339E+00	4.687E-06	3.685E-04	
T6 Public Class 4	Diesel	2.242E-04	1.891E-02	5.144E-04	2.685E-05	9.394E-05	2.646E-05	1.018E-04	2.222E-04	8.988E-05	6.614E-06	3.562E-05	1.321E-04	2.836E+00	1.041E-05	4.468E-04	
T6 Public Class 4	Natural Gas	2.732E-05	2.121E-04	6.732E-03	0.000E+00	3.562E-06	2.646E-05	1.018E-04	1.318E-04	3.275E-06	6.614E-06	3.562E-05	4.551E-05	2.358E+00	1.912E-03	4.807E-04	
T6 Public Class 5	Diesel	1.364E-04	8.219E-03	3.834E-04	2.609E-05	4.071E-05	2.646E-05	1.018E-04	1.690E-04	3.895E-05	6.614E-06	3.562E-05	8.119E-05	2.755E+00	6.336E-06	4.341E-04	
T6 Public Class 5	Natural Gas	2.558E-05	4.989E-04	6.794E-03	0.000E+00	2.206E-06	2.646E-05	1.018E-04	1.304E-04	2.028E-06	6.614E-06	3.562E-05	4.427E-05	2.282E+00	1.790E-03	4.653E-04	
T6 Public Class 6	Diesel	2.278E-04	1.568E-02	5.259E-04	2.628E-05	1.040E-04	2.646E-05	1.018E-04	2.323E-04	9.952E-05	6.614E-06	3.562E-05	1.418E-04	2.776E+00	1.058E-05	4.373E-04	
T6 Public Class 6	Natural Gas	2.680E-05	2.959E-04	6.723E-03	0.000E+00	3.166E-06	2.646E-05	1.018E-04	1.314E-04	2.911E-06	6.614E-06	3.562E-05	4.515E-05	2.362E+00	1.876E-03	4.815E-04	
T6 Public Class 7	Diesel	3.024E-04	1.857E-02	6.397E-04	2.737E-05	1.504E-04	2.646E-05	1.018E-04	2.786E-04	1.439E-04	6.614E-06	3.562E-05	1.861E-04	2.891E+00	1.405E-05	4.554E-04	
T6 Public Class 7	Natural Gas	2.667E-05	3.182E-04	6.734E-03	0.000E+00	3.061E-06	2.646E-05	1.018E-04	1.313E-04	2.814E-06	6.614E-06	3.562E-05	4.505E-05	2.330E+00	1.867E-03	4.750E-04	
T6 Utility Class 5	Diesel	4.684E-05	2.445E-03	1.905E-04	2.385E-05	1.193E-05	2.646E-05	1.003E-04	1.387E-04	1.142E-05	6.614E-06	3.511E-05	5.314E-05	2.518E+00	2.176E-06	3.968E-04	
T6 Utility Class 5	Natural Gas	2.099E-05	5.488E-04	6.347E-03	0.000E+00	1.389E-06	2.646E-05	1.003E-04	1.281E-04	1.277E-06	6.614E-06	3.511E-05	4.300E-05	2.234E+00	1.469E-03	4.555E-04	
T6 Utility Class 6	Diesel	6.890E-05	3.800E-03	2.394E-04	2.433E-05	1.958E-05	2.646E-05	1.003E-04	1.463E-04	1.874E-05	6.614E-06	3.511E-05	6.046E-05	2.569E+00	3.200E-06	4.047E-04	
T6 Utility Class 6	Natural Gas	2.087E-05	5.637E-04	6.357E-03	0.000E+00	1.312E-06	2.646E-05	1.003E-04	1.281E-04	1.206E-06	6.614E-06	3.511E-05	4.293E-05	2.234E+00	1.461E-03	4.555E-04	
T6 Utility Class 7	Diesel	5.147E-05	3.448E-03	1.941E-04	2.426E-05	1.859E-05	2.646E-05	1.003E-04	1.453E-04	1.778E-05	6.614E-06	3.511E-05	5.950E-05	2.562E+00	2.391E-06	4.037E-04	
T6 Utility Class 7	Natural Gas	2.146E-05	4.924E-04	6.308E-03	0.000E+00	1.680E-06	2.646E-05	1.003E-04	1.284E-04	1.545E-06	6.614E-06	3.511E-05	4.326E-05	2.230E+00	1.502E-03	4.545E-04	
T6TS	Gasoline	5.391E-04	2.816E-03	1.189E-02	4.127E-05	4.490E-06	2.646E-05	9.931E-05	1.303E-04	4.128E-06	6.614E-06	3.476E-05	4.550E-05	4.175E+00	1.010E-04	1.160E-04	
T7 CAIRP Class 8	Diesel	1.118E-04	6.103E-03	4.392E-04	3.340E-05	1.058E-04	7.937E-05	1.675E-04	3.526E-04	1.012E-04	1.984E-05	5.862E-05	1.797E-04	3.527E+00	5.192E-06	5.557E-04	
T7 NNOOS Class 8	Diesel	1.935E-04	6.344E-03	8.269E-04	3.368E-05	1.753E-04	7.937E-05	1.692E-04	4.239E-04	1.677E-04	1.984E-05	5.921E-05	2.468E-04	3.557E+00	8.989E-06	5.604E-04	
T7 NOOS Class 8	Diesel	1.262E-04	6.332E-03	4.930E-04	3.341E-05	1.144E-04	7.937E-05	1.677E-04	3.615E-04	1.094E-04	1.984E-05	5.871E-05	1.880E-04	3.528E+00	5.864E-06	5.559E-04	
T7 Other Port Class 8	Diesel	2.233E-04	8.979E-03	7.453E-04	3.570E-05	6.102E-05	7.937E-05	2.032E-04	3.436E-04	5.838E-05	1.984E-05	7.113E-05	1.494E-04	3.770E+00	1.037E-05	5.940E-04	
T7 POAK Class 8	Diesel	2.617E-04	9.784E-03	8.638E-04	3.571E-05	7.251E-05	7.937E-05	2.067E-04	3.586E-04	6.937E-05	1.984E-05	7.235E-05	1.616E-04	3.771E+00	1.215E-05	5.941E-04	
T7 POLA Class 8	Diesel	2.788E-04	1.044E-02	8.850E-04	3.591E-05	6.609E-05	7.937E-05	2.082E-04	3.536E-04	6.323E-05	1.984E-05	7.287E-05	1.559E-04	3.792E+00	1.295E-05	5.974E-04	
T7 POLA Class 8	Natural Gas	3.738E-05	1.557E-03	2.426E-02	0.000E+00	2.992E-06	7.937E-05	2.520E-04	3.343E-04	2.751E-06	1.984E-05	8.818E-05	1.108E-04	3.289E+00	2.616E-03	6.705E-04	
T7 Public Class 8	Diesel	3.474E-04	2.559E-02	1.122E-03	4.091E-05	1.675E-04	7.937E-05	2.633E-04	5.101E-04	1.602E-04	1.984E-05	9.215E-05	2.722E-04	4.320E+00	1.613E-05	6.806E-04	
T7 Public Class 8	Natural Gas	5.739E-05	1.599E-03	2.316E-02	0.000E+00	5.537E-06	7.937E-05	2.321E-04	3.170E-04	5.091E-06	1.984E-05	8.124E-05	1.062E-04	3.658E+00	4.017E-03	7.458E-04	
T7 Single Concrete/Transit M	Diesel	1.012E-04	3.676E-03	4.399E-04	3.569E-05	8.981E-05	7.937E-05	1.814E-04	3.506E-04	8.592E-05	1.984E-05	6.348E-05	1.692E-04	3.769E+00	4.702E-06	5.938E-04	
T7 Single Concrete/Transit M	Natural Gas	3.335E-05	9.543E-04	1.705E-02	0.000E+00	3.650E-06	7.937E-05	1.779E-04	2.609E-04	3.356E-06	1.984E-05	6.227E-05	8.547E-05	2.876E+00	2.334E-03	5.864E-04	
T7 Single Dump Class 8	Diesel	1.225E-04	5.633E-03	4.908E-04	3.527E-05	8.315E-05	7.937E-05	1.845E-04	3.471E-04	7.955E-05	1.984E-05	6.459E-05	1.640E-04	3.725E+00	5.688E-06	5.869E-04	
T7 Single Dump Class 8	Natural Gas	3.331E-05	1.040E-03	1.821E-02	0.000E+00	3.460E-06	7.937E-05	1.810E-04	2.638E-04	3.181E-06	1.984E-05	6.336E-05	8.638E-05	2.961E+00	2.332E-03	6.035E-04	
T7 Single Other Class 8	Diesel	1.264E-04	5.359E-03	4.908E-04	3.538E-05	8.247E-05	7.937E-05	1.841E-04	3.459E-04	7.890E-05	1.984E-05	6.442E-05	1.632E-04	3.736E+00	5.872E-06	5.886E-04	
T7 Single Other Class 8	Natural Gas	3.332E-05	1.024E-03	1.798E-02	0.000E+00	3.497E-06	7.937E-05	1.817E-04	2.646E-04	3.216E-06	1.984E-05	6.361E-05	8.667E-05	2.949E+00	2.332E-03	6.012E-04	
T7 SWCV Class 8	Diesel	5.103E-05	2.102E-02	1.370E-04	8.545E-05	3.657E-05	7.937E-05	4.630E-04	5.789E-04	3.498E-05	1.984E-05	1.620E-04	2.169E-04	9.024E+00	2.370E-06	1.422E-03	
T7 SWCV Class 8	Natural Gas	5.919E-04	9.591E-03	4.842E-02	0.000E+00	1.918E-05	7.937E-05	4.630E-04	5.615E-04	1.763E-05	1.984E-05	1.620E-04	1.995E-04	4.032E+00	1.220E-02	8.220E-04	
T7 Tractor Class 8	Diesel	1.601E-04	7.219E-03	6.064E-04	3.325E-05	1.005E-04	7.937E-05	1.819E-04	3.617E-04	9.612E-05	1.984E-05	6.365E-05	1.796E-04	3.512E+00	7.437E-06	5.533E-04	
T7 Tractor Class 8	Natural Gas	3.154E-05	1.051E-03	1.855E-02	0.000E+00	3.184E-06	7.937E-05	1.739E-04	2.564E-04	2.928E-06	1.984E-05	6.086E-05	8.362E-05	2.852E+00	2.207E-03	5.813E-04	
T7 Utility Class 8	Diesel	8.590E-05	5.231E-03	4.228E-04	3.707E-05	2.412E-05	7.937E-05	2.161E-04	3.196E-04	2.308E-05	1.984E-05	7.565E-05	1.186E-04	3.915E+00	3.990E-06	6.168E-04	
T7IS	Gasoline	1.162E-02	5.311E-02	6.942E-01	6.545E-05	2.887E-05	4.409E-05	2.552E-04	3.282E-04	2.655E-05	1.102E-05	8.933E-05	1.269E-04	6.620E+00	1.724E-03	1.048E-03	
UBUS	Gasoline	2.844E-05	4.321E-04	5.782E-04	3.977E-05	2.628E-06	2.646E-05	2.425E-04	2.716E-04	2.416E-06	6.614E-06	8.488E-05	9.391E-05	4.022E+00	8.693E-06	4.029E-05	
UBUS	Diesel	1.499E-04	4.528E-03	4.420E-04	2.487E-05	1.615E-05	6.154E-05	2.425E-04	3.202E-04	1.545E-05	1.539E-05	8.486E-05	1.157E-04	2.624E+00	6.962E-06	4.134E-04	
UBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.840E-05	1.213E-04	1.997E-04	0.000E+00	1.960E-05	4.244E-05	6.204E-05	0.000E+00	0.000E+00	0.000E+00	
UBUS	Natural Gas	7.728E-05	4.616E-04	4.539E-02	0.000E+00	7.592E-07	4.307E-05	2.419E-04	2.857E-04	7.264E-07	1.077E-05	8.465E-05	9.615E-05	2.340E+00	4.150E-03	4.769E-04	
	Total																

Source: EMFAC2021 (v1.0.2) Emis
Region Type: Sub-Area
Region: San Joaquin (SJV)
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day

		MTons/Mile															
Vehicle Category	Fuel	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX	
All Other Buses	Diesel	5.260E-07	5.884E-06	1.322E-06	1.129E-08	1.717E-07	1.200E-08	4.614E-08	2.298E-07	1.643E-07	3.000E-09	1.615E-08	1.834E-07	1.192E-03	2.443E-08	1.878E-07	
All Other Buses	Natural Gas	1.232E-08	5.851E-08	3.449E-06	0.000E+00	1.839E-09	1.200E-08	4.614E-08	5.998E-08	1.691E-09	3.000E-09	1.615E-08	2.084E-08	1.086E-03	8.622E-07	2.214E-07	
LDA	Gasoline	1.675E-08	7.047E-08	1.098E-06	3.012E-09	1.609E-09	8.000E-09	8.581E-09	1.819E-08	1.480E-09	2.000E-09	3.004E-09	6.483E-09	3.047E-04	4.014E-09	6.403E-09	
LDA	Diesel	3.689E-08	3.460E-07	4.257E-07	2.299E-09	2.125E-08	8.000E-09	8.637E-09	3.789E-08	2.033E-08	2.000E-09	3.023E-09	2.536E-08	2.426E-04	1.713E-09	3.823E-08	
LDA	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.361E-09	1.236E-08	0.000E+00	2.000E-09	1.526E-09	3.526E-09	0.000E+00	0.000E+00	0.000E+00	
LDA	Plug-in Hybrid	1.778E-09	3.781E-09	2.690E-07	1.589E-09	9.975E-10	8.000E-09	4.069E-09	1.307E-08	9.171E-10	2.000E-09	1.424E-09	4.341E-09	1.607E-04	5.620E-10	6.844E-10	
LDT1	Gasoline	6.046E-08	2.477E-07	2.654E-06	3.581E-09	2.929E-09	8.000E-09	1.041E-08	2.134E-08	2.693E-09	2.000E-09	3.642E-09	8.336E-09	3.622E-04	1.289E-08	1.620E-08	
LDT1	Diesel	3.075E-07	1.518E-06	1.754E-06	3.921E-09	2.488E-07	8.000E-09	1.182E-08	2.686E-07	2.380E-07	2.000E-09	4.138E-09	2.441E-07	4.138E-04	1.428E-08	6.520E-08	
LDT1	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.423E-09	1.242E-08	0.000E+00	2.000E-09	1.548E-09	3.548E-09	0.000E+00	0.000E+00	0.000E+00	
LDT1	Plug-in Hybrid	1.724E-09	3.667E-09	2.620E-07	1.543E-09	8.428E-10	8.000E-09	4.062E-09	1.290E-08	7.749E-10	2.000E-09	1.422E-09	4.197E-09	1.561E-04	5.494E-10	6.740E-10	
LDT2	Gasoline	2.205E-08	1.350E-07	1.370E-06	3.821E-09	1.714E-09	8.000E-09	9.970E-09	1.968E-08	1.576E-09	2.000E-09	3.490E-09	7.066E-09	3.865E-04	5.142E-09	9.411E-09	
LDT2	Diesel	2.836E-08	9.298E-08	2.005E-07	3.157E-09	1.335E-08	8.000E-09	9.564E-09	3.092E-08	1.277E-08	2.000E-09	3.347E-09	1.812E-08	3.332E-04	1.317E-09	5.250E-08	
LDT2	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.350E-09	1.235E-08	0.000E+00	2.000E-09	1.523E-09	3.523E-09	0.000E+00	0.000E+00	0.000E+00	
LDT2	Plug-in Hybrid	1.742E-09	3.704E-09	2.645E-07	1.558E-09	1.014E-09	8.000E-09	4.063E-09	1.308E-08	9.325E-10	2.000E-09	1.422E-09	4.355E-09	1.576E-04	5.541E-10	6.787E-10	
LHD1	Gasoline	7.804E-08	3.209E-07	1.667E-06	9.490E-09	2.115E-09	8.000E-09	7.800E-08	8.811E-08	1.945E-09	2.000E-09	2.730E-08	3.124E-08	9.600E-04	1.504E-08	1.731E-08	
LHD1	Diesel	2.437E-07	2.739E-06	7.203E-07	6.069E-09	5.565E-08	1.200E-08	7.800E-08	1.457E-07	5.325E-08	3.000E-09	2.730E-08	8.355E-08	6.405E-04	1.132E-08	1.009E-07	
LHD2	Gasoline	5.692E-08	2.800E-07	1.346E-06	1.045E-08	1.895E-09	8.000E-09	9.100E-08	1.009E-07	1.742E-09	2.000E-09	3.185E-08	3.559E-08	1.057E-03	1.155E-08	1.542E-08	
LHD2	Diesel	2.023E-07	2.020E-06	5.548E-07	7.418E-09	4.431E-08	1.200E-08	9.100E-08	1.473E-07	4.239E-08	3.000E-09	3.185E-08	7.724E-08	7.828E-04	9.397E-09	1.233E-07	
MCY	Gasoline	1.551E-06	7.103E-07	1.678E-05	1.938E-09	1.937E-09	4.000E-09	1.200E-08	1.794E-08	1.820E-09	1.000E-09	4.200E-09	7.020E-09	1.961E-04	2.197E-07	4.547E-08	
MDV	Gasoline	3.583E-08	2.040E-07	1.713E-06	4.636E-09	1.751E-09	8.000E-09	1.031E-08	2.006E-08	1.610E-09	2.000E-09	3.608E-09	7.218E-09	4.690E-04	7.655E-09	1.287E-08	
MDV	Diesel	1.976E-08	1.276E-07	3.004E-07	4.104E-09	8.801E-09	8.000E-09	9.768E-09	2.657E-08	8.420E-09	2.000E-09	3.419E-09	1.384E-08	4.331E-04	9.177E-10	6.824E-08	
MDV	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.348E-09	1.235E-08	0.000E+00	2.000E-09	1.522E-09	3.522E-09	0.000E+00	0.000E+00	0.000E+00	
MDV	Plug-in Hybrid	1.780E-09	3.787E-09	2.698E-07	1.592E-09	1.146E-09	8.000E-09	4.065E-09	1.321E-08	1.054E-09	2.000E-09	1.423E-09	4.476E-09	1.611E-04	5.623E-10	6.843E-10	
MH	Gasoline	1.023E-07	5.466E-07	2.661E-06	1.930E-08	2.017E-09	1.200E-08	4.505E-08	5.906E-08	1.857E-09	3.000E-09	1.577E-08	2.062E-08	1.952E-03	2.157E-08	3.111E-08	
MH	Diesel	1.439E-07	5.360E-06	4.989E-07	1.022E-08	1.457E-07	1.600E-08	4.484E-08	2.066E-07	1.394E-07	4.000E-09	1.569E-08	1.591E-07	1.079E-03	6.683E-09	1.700E-07	
Motor Coach	Diesel	8.562E-08	3.013E-06	3.360E-07	1.669E-08	6.600E-08	1.200E-08	7.695E-08	1.549E-07	6.314E-08	3.000E-09	2.693E-08	9.308E-08	1.762E-03	3.977E-09	2.777E-07	
OBUS	Gasoline	1.304E-07	9.525E-07	2.981E-06	1.838E-08	9.343E-10	1.200E-08	4.489E-08	5.782E-08	8.591E-10	3.000E-09	1.571E-08	1.957E-08	1.859E-03	2.625E-08	4.158E-08	
PTO	Diesel	1.251E-07	4.082E-06	5.021E-07	2.041E-08	2.650E-08	0.000E+00	0.000E+00	2.650E-08	2.536E-08	0.000E+00	0.000E+00	2.536E-08	2.156E-03	5.812E-09	3.397E-07	
SBUS	Gasoline	2.881E-08	2.393E-07	6.780E-07	7.944E-09	1.087E-09	8.000E-09	4.492E-08	5.400E-08	9.993E-10	2.000E-09	1.572E-08	1.872E-08	8.035E-04	6.085E-09	1.662E-08	
SBUS	Diesel	8.209E-08	5.372E-06	2.379E-07	1.092E-08	3.071E-08	1.200E-08	4.492E-08	8.763E-08	2.938E-08	3.000E-09	1.572E-08	4.810E-08	1.153E-03	3.813E-09	1.817E-07	
SBUS	Natural Gas	4.611E-08	4.930E-07	1.066E-05	0.000E+00	3.674E-09	1.200E-08	4.492E-08	6.059E-08	3.378E-09	3.000E-09	1.572E-08	2.210E-08	1.270E-03	3.227E-06	2.589E-07	
T6 CAIRP Class 4	Diesel	4.418E-08	1.279E-06	1.766E-07	1.079E-08	4.128E-08	1.200E-08	4.231E-08	9.559E-08	3.950E-08	3.000E-09	1.481E-08	5.731E-08	1.139E-03	2.052E-09	1.795E-07	
T6 CAIRP Class 5	Diesel	3.070E-08	1.034E-06	1.339E-07	1.075E-08	3.110E-08	1.200E-08	4.231E-08	8.542E-08	2.976E-08	3.000E-09	1.481E-08	4.757E-08	1.136E-03	1.426E-09	1.789E-07	
T6 CAIRP Class 6	Diesel	4.053E-08	1.201E-06	1.625E-07	1.069E-08	3.819E-08	1.200E-08	4.231E-08	9.251E-08	3.654E-08	3.000E-09	1.481E-08	5.435E-08	1.129E-03	1.882E-09	1.779E-07	
T6 CAIRP Class 7	Diesel	4.050E-08	1.421E-06	1.707E-07	1.004E-08	3.799E-08	1.200E-08	4.231E-08	9.231E-08	3.635E-08	3.000E-09	1.481E-08	5.416E-08	1.061E-03	1.881E-09	1.671E-07	
T6 Instate Delivery Class 4	Diesel	2.263E-07	3.486E-06	6.225E-07	1.134E-08	8.524E-08	1.200E-08	4.756E-08	1.448E-07	8.155E-08	3.000E-09	1.665E-08	1.012E-07	1.197E-03	1.051E-08	1.887E-07	
T6 Instate Delivery Class 5	Diesel	2.282E-07	3.437E-06	6.221E-07	1.148E-08	8.617E-08	1.200E-08	4.756E-08	1.457E-07	8.245E-08	3.000E-09	1.665E-08	1.021E-07	1.213E-03	1.060E-08	1.911E-07	
T6 Instate Delivery Class 6	Diesel	2.403E-07	3.539E-06	6.533E-07	1.140E-08	9.905E-08	1.200E-08	4.756E-08	1.586E-07	9.476E-08	3.000E-09	1.665E-08	1.144E-07	1.204E-03	1.116E-08	1.897E-07	
T6 Instate Delivery Class 7	Diesel	1.208E-07	2.921E-06	3.420E-07	1.156E-08	3.042E-08	1.200E-08	4.756E-08	8.998E-08	2.910E-08	3.000E-09	1.665E-08	4.875E-08	1.221E-03	5.611E-09	1.924E-07	
T6 Instate Delivery Class 7	Natural Gas	1.248E-08	5.982E-08	3.819E-06	0.000E+00	2.018E-09	1.200E-08	4.756E-08	6.158E-08	1.855E-09	3.000E-09	1.665E-08	2.150E-08	1.111E-03	8.732E-07	2.264E-07	
T6 Instate Other Class 4	Diesel	2.544E-07	4.256E-06	7.426E-07	1.079E-08	1.315E-07	1.200E-08	4.486E-08	1.884E-07	1.258E-07	3.000E-09	1.570E-08	1.445E-07	1.139E-03	1.181E-08	1.795E-07	
T6 Instate Other Class 5	Diesel	7.512E-08	1.614E-06	2.489E-07	1.083E-08	3.890E-08	1.200E-08	4.486E-08	9.576E-08	3.721E-08	3.000E-09	1.570E-08	5.592E-08	1.144E-03	3.489E-09	1.802E-07	
T6 Instate Other Class 6	Diesel	1.785E-07	3.084E-06	5.317E-07	1.073E-08	9.451E-08	1.200E-08	4.486E-08	1.514E-07	9.042E-08	3.000E-09	1.570E-08	1.091E-07	1.133E-03	8.292E-09	1.785E-07	
T6 Instate Other Class 7	Diesel	9.029E-08	2.451E-06	2.926E-07	1.065E-08	4.280E-08	1.200E-08	4.486E-08	9.966E-08	4.095E-08	3.000E-09	1.570E-08	5.965E-08	1.125E-03	4.194E-09	1.772E-07	
T6 Instate Other Class 7	Natural Gas	9.952E-09	5.323E-08	2.673E-06	0.000E+00	1.551E-09	1.200E-08	4.486E-08	5.841E-08	1.426E-09	3.000E-09	1.570E-08	2.013E-08	9.681E-04	6.965E-07	1.973E-07	
T6 Instate Tractor Class 6	Diesel	2.903E-07	4.211E-06	8.572E-07	1.072E-08	1.616E-07	1.200E-08	4.486E-08	2.184E-07	1.546E-07	3.000E-09	1.570E-08	1.733E-07	1.132E-03	1.348E-08	1.783E-07	
T6 Instate Tractor Class 7	Diesel	1.023E-07	2.934E-06	3.044E-07	1.046E-08	3.569E-08	1.200E-08	4.486E-08	9.255E-08	3.414E-08	3.000E-09	1.570E-08	5.284E-08	1.105E-03	4.749E-09	1.741E-07	
T6 Instate Tractor Class 7	Natural Gas	9.955E-09	5.300E-08	2.672E-06	0.000E+00	1.552E-09	1.200E-08	4.486E-08	5.842E-08	1.427E-09	3.000E-09	1.570E-08	2.013E-08	9.680E-04	6.967E-07	1.973E-07	
T6 OOS Class 4	Diesel	4.605E-08	1.317E-06	1.825E-07	1.078E-08	4.270E-08	1.200E-08	4.231E-08	9.701E-08	4.085E-08	3.000E-09	1.481E-08	5.866E-08	1.139E-03	2.139E-09	1.794E-07	
T6 OOS Class 5	Diesel	3.154E-08	1.050E-06	1.373E-07	1.075E-08	3.192E-08	1.200E-08	4.231E-08	8.624E-08	3.054E-08	3.000E-09	1.481E-08	4.835E-08	1.135E-03	1.465E-09	1.789E-07	
T6 OOS Class 6	Diesel	4.241E-08	1.239E-06	1.685E-07	1.069E-08	3.961E-08	1.200E-08	4.231E-08	9.393E-08	3.790E-08	3.000E-09	1.481E-08	5.571E-08	1.129E-03	1.970E-09	1.778E-07	
T6 OOS Class 7	Diesel	4.578E-08	1.479E-06	1.923E-07	1.005E-08	4.272E-08	1.200E-08	4.231E-08	9.704E-08	4.088E-08	3.000E-09	1.481E-08	5.869E-08	1.061E-03	2.126E-09	1.672E-07	
T6 Public Class 4	Diesel	1.017E-07	8.577E-06	2.333E-07	1.218E-08	4.261E-08	1.200E-08	4.617E-08	1.008E-07	4.077E-08	3.000E-09	1.616E-08	5.993E-08	1.286E-03	4.724E-09	2.027E-07	
T6 Public Class 4	Natural Gas	1.239E-08	9.621E-08	3.054E-06	0.000E+00	1.616E-09	1.200E-08	4.617E-08	5.979E-08	1.486E-09	3.000E-09	1.616E-08	2.064E-08	1.070E-03	8.672E-07	2.180E-07	
T6 Public Class 5	Diesel	6.188E-08	3.728E-06	1.739E-07	1.184E-08	1.847E-08	1.200E-08	4.617E-08	7.664E-08	1.767E-08	3.000E-09	1.616E-08	3.683E-08	1.250E-03	2.874E-09	1.969E-07	
T6 Public Class 5	Natural Gas	1.160E-08	2.263E-07	3.082E-06	0.000E+00	1.001E-09	1.200E-08	4.617E-08	5.917E-08	9.200E-10	3.000E-09	1.616E-08	2.008E-08	1.035E-03	8.120E-07	2.111E-07	
T6 Public Class 6	Diesel	1.033E-07	7.114E-06	2.386E-07	1.192E-08	4.718E-08	1.200E-08	4.617E-08	1.054E-07	4.514E-08	3.000E-09	1.616E-08	6.430E-08	1.259E-03	4.800E-09	1.984E-07	
T6 Public Class 6	Natural Gas	1.216E-08	1.342E-07	3.049E-06	0.000E+00	1.436E-09	1.200E-08	4.617E-08	5.961E-08	1.321E-09	3.000E-09	1.616E-08	2.048E-08	1.071E-03	8.509E-07	2.184E-07	
T6 Public Class 7	Diesel	1.372E-07	8.424E-06	2.902E-07	1.242E-08	6.822E-08	1.200E-08	4.617E-08	1.264E-07	6.527E-08	3.000E-09	1.616E-08	8.443E-08	1.311E-03	6.371E-09	2.066E-07	
T6 Public Class 7	Natural Gas	1.210E-08	1.443E-07	3.055E-06	0.000E+00	1.388E-09	1.200E-08	4.617E-08	5.956E-08	1.277E-09	3.000E-09	1.616E-08	2.044E-08	1.057E-03	8.467E-07	2.155E-07	
T6 Utility Class 5	Diesel	2.125E-08	1.109E-06	8.642E-08	1.082E-08	5.413E-09	1.200E-08	4.550E-08	6.291E-08	5.179E-09	3.000E-09	1.592E-08	2.410E-08	1.142E-03	9.869E-10	1.800E-07	
T6 Utility Class 5	Natural Gas	9.523E-09	2.489E-07	2.879E-06	0.000E+00	6.299E-10	1.200E-08	4.550E-08	5.813E-08	5.791E-10	3.000E-09	1.592E-08	1.950E-08	1.013E-03	6.665E-07	2.066E-07	
T6 Utility Class 6	Diesel	3.125E-08	1.724E-06	1.086E-07	1.103E-08	8.884E-09	1.200E-08	4.550E-08	6.638E-08	8.499E-09	3.000E-09	1.592E-08	2.742E-08	1.165E-03	1.452E-09	1.836E-07	
T6 Utility Class 6	Natural Gas	9.467E-09	2.557E-07	2.883E-06	0.000E+00	5.949E-10	1.200E-08	4.550E-08	5.809E-08	5.470E-10	3.000E-09	1.592E-08	1.947E-08	1.013E-03	6.626E-07	2.066E-07	
T6 Utility Class 7	Diesel	2.335E-08	1.564E-06	8.803E-08	1.101E-08	8.432E-09	1.200E-08	4.550E-08	6.593E-08	8.067E-09	3.000E-09	1.592E-08	2.699E-08	1.162E-03	1.084E-09	1.831E-07	
T6 Utility Class 7	Natural Gas	9.735E-09	2.234E-07	2.861E-06	0.000E+00	7.622E-10	1.200E-08	4.550E-08	5.826E-08	7.008E-10	3.000E-09	1.592E-08	1.962E-08	1.011E-03	6.813E-07	2.062E-07	
T6TS	Gasoline	2.446E-07	1.277E-06	5.394E-06	1.872E-08	2.037E-09	1.200E-08	4.505E-08	5.908E-08	1.873E-09	3.000E-09	1.577E-08	2.064E-08	1.894E-03	4.581E-08	5.260E-08	
T7 CAIRP Class 8	Diesel	5.071E-08	2.768E-06	1.992E-07	1.515E-08	4.798E-08	3.600E-08	7.597E-08	1.600E-07	4.591E-08	9.000E-09	2.659E-08	8.150E-08	1.600E-03	2.355E-09	2.520E-07	
T7 NNOOS Class 8	Diesel	8.779E-08	2.877E-06	3.751E-07	1.528E-08	7.953E-08	3.600E-08	7.673E-08	1.923E-07	7.609E-08	9.000E-09	2.686E-08	1.119E-07	1.613E-03	4.078E-09	2.542E-07	
T7 NOOS Class 8	Diesel	5.726E-08	2.872E-06	2.236E-07	1.516E-08	5.188E-08	3.600E-08	7.608E-08	1.640E-07	4.963E-08	9.000E-09	2.663E-08	8.526E-08	1.600E-03	2.660E-09	2.522E-07	
T7 Other Port Class 8	Diesel	1.013E-07	4.073E-06	3.381E-07	1.619E-08	2.768E-08	3.600E-08	9.219E-08	1.559E-07	2.648E-08	9.000E-09	3.227E-08	6.775E-08	1.710E-03	4.705E-09	2.694E-07	
T7 POAK Class 8	Diesel	1.187E-07	4.438E-06	3.918E-07	1.620E-08	3.289E-08	3.600E-08	9.376E-08	1.626E-07	3.147E-08	9.000E-09	3.282E-08	7.328E-08	1.710E-03	5.513E-09	2.695E-07	
T7 POLA Class 8	Diesel	1.265E-07	4.737E-06	4.014E-07	1.629E-08	2.998E-08	3.600E-08	9.444E-08	1.604E-07	2.868E-08	9.000E-09	3.305E-08	7.073E-08	1.720E-03	5.874E-09	2.710E-07	
T7 POLA Class 8	Natural Gas	1.696E-08	7.063E-07	1.101E-05	0.000E+00	1.357E-09	3.600E-08	1.143E-07	1.516E-07	1.248E-09	9.000E-09	4.000E-08	5.025E-08	1.492E-03	1.187E-06	3.041E-07	
T7 Public Class 8	Diesel	1.576E-07	1.161E-05	5.089E-07	1.855E-08	7.596E-08	3.600E-08	1.194E-07	2.314E-07	7.268E-08	9.000E-09	4.180E-08	1.235E-07	1.959E-03	7.319E-09	3.087E-07	
T7 Public Class 8	Natural Gas	2.603E-08	7.251E-07	1.050E-05	0.000E+00	2.512E-09	3.600E-08	1.053E-07	1.438E-07	2.309E-09	9.000E-09	3.685E-08	4.816E-08	1.659E-03	1.822E-06	3.383E-07	
T7 Single Concrete/Transit M	Diesel	4.592E-08	1.667E-06	1.996E-07	1.619E-08	4.074E-08	3.600E-08	8.228E-08	1.590E-07	3.897E-08	9.000E-09	2.880E-08	7.677E-08	1.709E-03	2.133E-09	2.693E-07	
T7 Single Concrete/Transit M	Natural Gas	1.513E-08	4.329E-07	7.732E-06	0.000E+00	1.656E-09	3.600E-08	8.070E-08	1.184E-07	1.522E-09	9.000E-09	2.825E-08	3.877E-08	1.305E-03	1.059E-06	2.660E-07	
T7 Single Dump Class 8	Diesel	5.555E-08	2.555E-06	2.226E-07	1.600E-08	3.772E-08	3.600E-08	8.371E-08	1.574E-07	3.608E-08	9.000E-09	2.930E-08	7.438E-08	1.690E-03	2.580E-09	2.662E-07	
T7 Single Dump Class 8	Natural Gas	1.511E-08	4.718E-07	8.262E-06	0.000E+00	1.569E-09	3.600E-08	8.211E-08	1.197E-07	1.443E-09	9.000E-09	2.874E-08	3.918E-08	1.343E-03	1.058E-06	2.738E-07	
T7 Single Other Class 8	Diesel	5.734E-08	2.431E-06	2.226E-07	1.605E-08	3.741E-08	3.600E-08	8.349E-08	1.569E-07	3.579E-08	9.000E-09	2.922E-08	7.401E-08	1.695E-03	2.663E-09	2.670E-07	
T7 Single Other Class 8	Natural Gas	1.512E-08	4.645E-07	8.155E-06	0.000E+00	1.586E-09	3.600E-08	8.244E-08	1.200E-07	1.459E-09	9.000E-09	2.885E-08	3.931E-08	1.338E-03	1.058E-06	2.727E-07	
T7 SWCV Class 8	Diesel	2.315E-08	9.533E-06	6.215E-08	3.876E-08	1.659E-08	3.600E-08	2.100E-07	2.626E-07	1.587E-08	9.000E-09	7.350E-08	9.837E-08	4.093E-03	1.075E-09	6.449E-07	
T7 SWCV Class 8	Natural Gas	2.685E-07	4.350E-06	2.196E-05	0.000E+00	8.699E-09	3.600E-08	2.100E-07	2.547E-07	7.998E-09	9.000E-09	7.350E-08	9.050E-08	1.829E-03	5.533E-06	3.729E-07	
T7 Tractor Class 8	Diesel	7.263E-08	3.274E-06	2.751E-07	1.508E-08	4.557E-08	3.600E-08	8.249E-08	1.641E-07	4.360E-08	9.000E-09	2.887E-08	8.147E-08	1.593E-03	3.373E-09	2.510E-07	
T7 Tractor Class 8	Natural Gas	1.431E-08	4.767E-07	8.413E-06	0.000E+00	1.444E-09	3.600E-08	7.887E-08	1.163E-07	1.328E-09	9.000E-09	2.760E-08	3.793E-08	1.293E-03	1.001E-06	2.637E-07	
T7 Utility Class 8	Diesel	3.896E-08	2.373E-06	1.918E-07	1.682E-08	1.094E-08	3.600E-08	9.804E-08	1.450E-07	1.047E-08	9.000E-09	3.431E-08	5.378E-08	1.776E-03	1.810E-09	2.798E-07	
T7IS	Gasoline	5.271E-06	2.409E-05	3.149E-04	2.969E-08	1.310E-08	2.000E-08	1.158E-07	1.489E-07	1.204E-08	5.000E-09	4.052E-08	5.756E-08	3.003E-03	7.822E-07	4.753E-07	
UBUS	Gasoline	1.290E-08	1.960E-07	2.623E-07	1.804E-08	1.192E-09	1.200E-08	1.100E-07	1.232E-07	1.096E-09	3.000E-09	3.850E-08	4.260E-08	1.825E-03	3.943E-09	1.827E-08	
UBUS	Diesel	6.799E-08	2.054E-06	2.005E-07	1.128E-08	7.324E-09	2.792E-08	1.100E-07	1.452E-07	7.007E-09	6.979E-09	3.849E-08	5.248E-08	1.190E-03	3.158E-09	1.875E-07	
UBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.556E-08	5.500E-08	9.056E-08	0.000E+00	8.891E-09	1.925E-08	2.814E-08	0.000E+00	0.000E+00	0.000E+00	
UBUS	Natural Gas	3.505E-08	2.094E-07	2.059E-05	0.000E+00	3.444E-10	1.953E-08	1.097E-07	1.296E-07	3.295E-10	4.884E-09	3.840E-08	4.361E-08	1.061E-03	1.882E-06	2.163E-07	
	Total																

Year 2045 Current GP: Criteria Air Pollutants

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

City Daily VMT	347,992				lbs/day			
Vehicle Type	**Fuel Type**	**Percent of VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
All Other Buses	Diesel	0.01%	8.50	0.14	0.02	0.00	0.01	0.00
All Other Buses	Natural Gas	0.00%	0.70	0.00	0.03	0.00	0.00	0.00
LDA	Gasoline	41.53%	479.04	6.50	173.96	0.72	5.68	1.84
LDA	Diesel	0.02%	2.45	0.00	0.04	0.00	0.00	0.00
LDA	Electricity	5.39%	0.00	0.00	0.00	0.00	0.51	0.15
LDA	Plug-in Hybrid	1.96%	3.39	0.04	3.16	0.02	0.19	0.06
LDT1	Gasoline	2.46%	29.52	0.42	10.96	0.05	0.37	0.12
LDT1	Diesel	0.00%	0.01	0.00	0.00	0.00	0.00	0.00
LDT1	Electricity	0.07%	0.00	0.00	0.00	0.00	0.01	0.00
LDT1	Plug-in Hybrid	0.06%	0.10	0.00	0.09	0.00	0.01	0.00
LDT2	Gasoline	21.73%	267.35	3.91	106.29	0.45	3.24	1.05
LDT2	Diesel	0.08%	11.47	0.02	0.12	0.00	0.01	0.01
LDT2	Electricity	0.59%	0.00	0.00	0.00	0.00	0.06	0.02
LDT2	Plug-in Hybrid	0.59%	1.02	0.01	0.95	0.01	0.06	0.02
LHD1	Gasoline	0.75%	4.65	0.12	3.42	0.04	0.50	0.17
LHD1	Diesel	0.47%	154.77	1.34	0.90	0.02	0.40	0.18
LHD1	Electricity	0.93%	0.00	0.00	0.00	0.00	0.33	0.11
LHD2	Gasoline	0.08%	0.60	0.01	0.36	0.00	0.06	0.02
LHD2	Diesel	0.22%	85.73	0.92	0.54	0.01	0.22	0.10
LHD2	Electricity	0.21%	0.00	0.00	0.00	0.00	0.09	0.03
MCY	Gasoline	0.23%	29.19	0.86	19.14	0.00	0.03	0.01
MDV	Gasoline	12.04%	155.27	2.47	61.87	0.30	1.81	0.59
MDV	Diesel	0.13%	23.97	0.01	0.21	0.00	0.02	0.01
MDV	Electricity	0.54%	0.00	0.00	0.00	0.00	0.05	0.01
MDV	Plug-in Hybrid	0.36%	0.61	0.01	0.58	0.00	0.03	0.01
MH	Gasoline	0.03%	1.68	0.04	0.03	0.00	0.01	0.00
MH	Diesel	0.02%	9.20	0.32	0.03	0.00	0.01	0.01
Motor Coach	Diesel	0.01%	8.73	0.07	0.00	0.00	0.01	0.00
OBUS	Gasoline	0.01%	0.64	0.02	0.04	0.00	0.00	0.00
OBUS	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
PTO	Diesel	0.06%	53.02	1.07	0.08	0.01	0.00	0.00
PTO	Electricity	0.05%	0.00	0.00	0.00	0.00	0.00	0.00
SBUS	Gasoline	0.02%	1.07	0.03	0.03	0.00	0.01	0.00
SBUS	Diesel	0.02%	11.53	0.07	0.01	0.00	0.01	0.00
SBUS	Electricity	0.03%	0.00	0.00	0.00	0.00	0.01	0.00
SBUS	Natural Gas	0.01%	5.02	0.01	0.33	0.00	0.00	0.00
T6 CAIRP Class 4	Diesel	0.00%	0.95	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 4	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	0.00%	1.30	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	0.01%	3.37	0.01	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	0.07%	34.30	0.10	0.02	0.00	0.03	0.01
T6 CAIRP Class 7	Electricity	0.02%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Delivery Class 4	Diesel	0.02%	13.65	0.07	0.01	0.00	0.01	0.00
T6 Instate Delivery Class 4	Electricity	0.03%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Delivery Class 5	Diesel	0.02%	8.90	0.04	0.01	0.00	0.01	0.00
T6 Instate Delivery Class 5	Electricity	0.02%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	0.07%	38.60	0.19	0.03	0.01	0.03	0.01
T6 Instate Delivery Class 6	Electricity	0.07%	0.00	0.00	0.00	0.00	0.02	0.01
T6 Instate Delivery Class 7	Diesel	0.03%	15.09	0.11	0.01	0.00	0.01	0.00
T6 Instate Delivery Class 7	Electricity	0.02%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.68	0.00	0.03	0.00	0.00	0.00
T6 Instate Other Class 4	Diesel	0.05%	28.54	0.11	0.02	0.00	0.02	0.01
T6 Instate Other Class 4	Electricity	0.06%	0.00	0.00	0.00	0.00	0.02	0.00
T6 Instate Other Class 5	Diesel	0.14%	80.65	0.30	0.05	0.01	0.07	0.02
T6 Instate Other Class 5	Electricity	0.16%	0.00	0.00	0.00	0.00	0.04	0.01
T6 Instate Other Class 6	Diesel	0.11%	59.91	0.23	0.03	0.01	0.05	0.02
T6 Instate Other Class 6	Electricity	0.12%	0.00	0.00	0.00	0.00	0.03	0.01
T6 Instate Other Class 7	Diesel	0.09%	49.59	0.32	0.04	0.01	0.04	0.02
T6 Instate Other Class 7	Electricity	0.07%	0.00	0.00	0.00	0.00	0.02	0.01
T6 Instate Other Class 7	Natural Gas	0.00%	1.39	0.00	0.04	0.00	0.00	0.00
T6 Instate Tractor Class 6	Diesel	0.00%	0.78	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 6	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00

T6 Instate Tractor Class 7	Diesel	0.21%	107.25	0.62	0.08	0.01	0.10	0.04
T6 Instate Tractor Class 7	Electricity	0.05%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Tractor Class 7	Natural Gas	0.01%	3.41	0.00	0.11	0.00	0.00	0.00
T6 OOS Class 4	Diesel	0.00%	1.22	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 5	Diesel	0.00%	1.68	0.01	0.00	0.00	0.00	0.00
T6 OOS Class 6	Diesel	0.01%	4.37	0.01	0.00	0.00	0.00	0.00
T6 OOS Class 7	Diesel	0.06%	28.66	0.11	0.01	0.00	0.03	0.01
T6 Public Class 4	Diesel	0.00%	1.42	0.01	0.00	0.00	0.00	0.00
T6 Public Class 4	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	0.00%	0.22	0.00	0.01	0.00	0.00	0.00
T6 Public Class 5	Diesel	0.01%	3.98	0.03	0.00	0.00	0.00	0.00
T6 Public Class 5	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	0.00%	0.66	0.00	0.02	0.00	0.00	0.00
T6 Public Class 6	Diesel	0.01%	6.11	0.04	0.00	0.00	0.00	0.00
T6 Public Class 6	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 6	Natural Gas	0.00%	0.95	0.00	0.03	0.00	0.00	0.00
T6 Public Class 7	Diesel	0.02%	10.26	0.06	0.01	0.00	0.01	0.00
T6 Public Class 7	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 7	Natural Gas	0.00%	1.71	0.00	0.06	0.00	0.00	0.00
T6 Utility Class 5	Diesel	0.00%	1.43	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 5	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 5	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Diesel	0.00%	0.27	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	0.00%	0.37	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.06%	1.43	0.03	0.08	0.01	0.03	0.01
T6TS	Electricity	0.07%	0.00	0.00	0.00	0.00	0.02	0.01
T7 CAIRP Class 8	Diesel	1.54%	1,078.00	14.19	0.46	0.14	1.74	0.78
T7 CAIRP Class 8	Electricity	0.44%	0.00	0.00	0.00	0.00	0.26	0.08
T7 NNOOS Class 8	Diesel	2.34%	1,571.34	23.87	0.67	0.21	2.64	1.18
T7 NOOS Class 8	Diesel	0.85%	570.51	8.92	0.25	0.08	0.97	0.44
T7 Other Port Class 8	Diesel	0.03%	19.02	0.24	0.01	0.00	0.03	0.01
T7 Other Port Class 8	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T7 POAK Class 8	Diesel	0.06%	46.12	0.61	0.03	0.01	0.07	0.03
T7 POAK Class 8	Electricity	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T7 POLA Class 8	Diesel	0.09%	69.91	0.99	0.05	0.01	0.10	0.04
T7 POLA Class 8	Electricity	0.02%	0.00	0.00	0.00	0.00	0.01	0.00
T7 POLA Class 8	Natural Gas	0.00%	0.35	0.00	0.02	0.00	0.00	0.00
T7 Public Class 8	Diesel	0.04%	37.78	0.61	0.05	0.01	0.05	0.02
T7 Public Class 8	Electricity	0.03%	0.00	0.00	0.00	0.00	0.02	0.01
T7 Public Class 8	Natural Gas	0.01%	5.58	0.01	0.34	0.00	0.01	0.00
T7 Single Concrete/Transit Mix Class 8	Diesel	0.02%	12.03	0.09	0.01	0.00	0.02	0.01
T7 Single Concrete/Transit Mix Class 8	Electricity	0.02%	0.00	0.00	0.00	0.00	0.01	0.00
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.00%	0.44	0.00	0.02	0.00	0.00	0.00
T7 Single Dump Class 8	Diesel	0.07%	56.23	0.58	0.03	0.01	0.07	0.03
T7 Single Dump Class 8	Electricity	0.06%	0.00	0.00	0.00	0.00	0.04	0.01
T7 Single Dump Class 8	Natural Gas	0.00%	2.02	0.00	0.09	0.00	0.00	0.00
T7 Single Other Class 8	Diesel	0.19%	150.23	1.41	0.07	0.02	0.20	0.08
T7 Single Other Class 8	Electricity	0.19%	0.00	0.00	0.00	0.00	0.11	0.03
T7 Single Other Class 8	Natural Gas	0.01%	5.42	0.01	0.22	0.00	0.01	0.00
T7 SWCV Class 8	Diesel	0.01%	25.52	0.22	0.01	0.00	0.03	0.01
T7 SWCV Class 8	Electricity	0.03%	0.00	0.00	0.00	0.00	0.03	0.01
T7 SWCV Class 8	Natural Gas	0.03%	30.85	0.09	2.55	0.00	0.06	0.02
T7 Tractor Class 8	Diesel	1.14%	800.18	10.36	0.42	0.11	1.26	0.52
T7 Tractor Class 8	Electricity	0.23%	0.00	0.00	0.00	0.00	0.14	0.04
T7 Tractor Class 8	Natural Gas	0.02%	13.71	0.02	0.52	0.00	0.02	0.01
T7 Utility Class 8	Diesel	0.00%	2.34	0.02	0.00	0.00	0.00	0.00
T7 Utility Class 8	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T7IS	Gasoline	0.00%	0.07	0.00	0.05	0.00	0.00	0.00
T7IS	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Diesel	0.00%	0.01	0.00	0.00	0.00	0.00	0.00
UBUS	Electricity	0.06%	0.00	0.00	0.00	0.00	0.04	0.01
UBUS	Natural Gas	0.00%	0.08	0.00	0.00	0.00	0.00	0.00
	Total	100.00%	6360.08	83.11	389.76	2.32	22.38	8.16

SOI Daily VMT	70,948				lbs/day			
Vehicle Type	Fuel Type	Percent of VMT	ROG	NOx	CO	SOx	PM10	PM2.5
All Other Buses	Diesel	1.49E-04	1.73	0.03	0.00	0.00	0.00	0.00
All Other Buses	Natural Gas	1.08E-05	0.14	0.00	0.01	0.00	0.00	0.00
LDA	Gasoline	4.15E-01	97.67	1.33	35.47	0.15	1.16	0.37
LDA	Diesel	2.44E-04	0.50	0.00	0.01	0.00	0.00	0.00
LDA	Electricity	5.39E-02	0.00	0.00	0.00	0.00	0.10	0.03
LDA	Plug-in Hybrid	1.96E-02	0.69	0.01	0.64	0.00	0.04	0.01
LDT1	Gasoline	2.46E-02	6.02	0.09	2.23	0.01	0.08	0.02
LDT1	Diesel	2.89E-07	0.00	0.00	0.00	0.00	0.00	0.00
LDT1	Electricity	7.36E-04	0.00	0.00	0.00	0.00	0.00	0.00
LDT1	Plug-in Hybrid	5.86E-04	0.02	0.00	0.02	0.00	0.00	0.00
LDT2	Gasoline	2.17E-01	54.51	0.80	21.67	0.09	0.66	0.21
LDT2	Diesel	8.28E-04	2.34	0.00	0.02	0.00	0.00	0.00
LDT2	Electricity	5.85E-03	0.00	0.00	0.00	0.00	0.01	0.00
LDT2	Plug-in Hybrid	5.94E-03	0.21	0.00	0.19	0.00	0.01	0.00
LHD1	Gasoline	7.49E-03	0.95	0.02	0.70	0.01	0.10	0.04
LHD1	Diesel	4.67E-03	31.55	0.27	0.18	0.00	0.08	0.04
LHD1	Electricity	9.28E-03	0.00	0.00	0.00	0.00	0.07	0.02
LHD2	Gasoline	7.76E-04	0.12	0.00	0.07	0.00	0.01	0.00
LHD2	Diesel	2.21E-03	17.48	0.19	0.11	0.00	0.04	0.02
LHD2	Electricity	2.11E-03	0.00	0.00	0.00	0.00	0.02	0.01
MCY	Gasoline	2.33E-03	5.95	0.18	3.90	0.00	0.01	0.00
MDV	Gasoline	1.20E-01	31.66	0.50	12.61	0.06	0.37	0.12
MDV	Diesel	1.32E-03	4.89	0.00	0.04	0.00	0.00	0.00
MDV	Electricity	5.37E-03	0.00	0.00	0.00	0.00	0.01	0.00
MDV	Plug-in Hybrid	3.58E-03	0.12	0.00	0.12	0.00	0.01	0.00
MH	Gasoline	2.67E-04	0.34	0.01	0.01	0.00	0.00	0.00
MH	Diesel	1.54E-04	1.88	0.06	0.01	0.00	0.00	0.00
Motor Coach	Diesel	1.04E-04	1.78	0.02	0.00	0.00	0.00	0.00
OBUS	Gasoline	1.07E-04	0.13	0.00	0.01	0.00	0.00	0.00
OBUS	Electricity	1.22E-04	0.00	0.00	0.00	0.00	0.00	0.00
PTO	Diesel	5.55E-04	10.81	0.22	0.02	0.00	0.00	0.00
PTO	Electricity	5.29E-04	0.00	0.00	0.00	0.00	0.00	0.00
SBUS	Gasoline	2.04E-04	0.22	0.01	0.01	0.00	0.00	0.00
SBUS	Diesel	2.03E-04	2.35	0.01	0.00	0.00	0.00	0.00
SBUS	Electricity	2.79E-04	0.00	0.00	0.00	0.00	0.00	0.00
SBUS	Natural Gas	6.54E-05	1.02	0.00	0.07	0.00	0.00	0.00
T6 CAIRP Class 4	Diesel	1.70E-05	0.19	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 4	Electricity	2.39E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	2.33E-05	0.26	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Electricity	3.27E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	6.07E-05	0.69	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Electricity	8.59E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	6.98E-04	6.99	0.02	0.00	0.00	0.01	0.00
T6 CAIRP Class 7	Electricity	2.21E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Diesel	2.38E-04	2.78	0.01	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Electricity	2.56E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	1.55E-04	1.82	0.01	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 5	Electricity	1.66E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	6.72E-04	7.87	0.04	0.01	0.00	0.01	0.00
T6 Instate Delivery Class 6	Electricity	7.22E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Diesel	2.55E-04	3.08	0.02	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Electricity	1.54E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Natural Gas	9.01E-06	0.14	0.00	0.01	0.00	0.00	0.00
T6 Instate Other Class 4	Diesel	5.13E-04	5.82	0.02	0.00	0.00	0.00	0.00
T6 Instate Other Class 4	Electricity	5.85E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Other Class 5	Diesel	1.45E-03	16.44	0.06	0.01	0.00	0.01	0.00
T6 Instate Other Class 5	Electricity	1.65E-03	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Other Class 6	Diesel	1.08E-03	12.21	0.05	0.01	0.00	0.01	0.00
T6 Instate Other Class 6	Electricity	1.22E-03	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Other Class 7	Diesel	8.84E-04	10.11	0.06	0.01	0.00	0.01	0.00
T6 Instate Other Class 7	Electricity	6.63E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Natural Gas	2.18E-05	0.28	0.00	0.01	0.00	0.00	0.00
T6 Instate Tractor Class 6	Diesel	1.39E-05	0.16	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 6	Electricity	1.65E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	2.09E-03	21.87	0.13	0.02	0.00	0.02	0.01
T6 Instate Tractor Class 7	Electricity	4.88E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Natural Gas	5.43E-05	0.69	0.00	0.02	0.00	0.00	0.00

T6 OOS Class 4	Diesel	2.34E-05	0.25	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 5	Diesel	3.21E-05	0.34	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 6	Diesel	8.39E-05	0.89	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 7	Diesel	6.10E-04	5.84	0.02	0.00	0.00	0.01	0.00
T6 Public Class 4	Diesel	2.38E-05	0.29	0.00	0.00	0.00	0.00	0.00
T6 Public Class 4	Electricity	2.34E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	3.16E-06	0.04	0.00	0.00	0.00	0.00	0.00
T6 Public Class 5	Diesel	6.64E-05	0.81	0.01	0.00	0.00	0.00	0.00
T6 Public Class 5	Electricity	6.52E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	9.51E-06	0.14	0.00	0.00	0.00	0.00	0.00
T6 Public Class 6	Diesel	1.02E-04	1.25	0.01	0.00	0.00	0.00	0.00
T6 Public Class 6	Electricity	9.93E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 6	Natural Gas	1.37E-05	0.19	0.00	0.01	0.00	0.00	0.00
T6 Public Class 7	Diesel	1.74E-04	2.09	0.01	0.00	0.00	0.00	0.00
T6 Public Class 7	Electricity	1.37E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 7	Natural Gas	2.46E-05	0.35	0.00	0.01	0.00	0.00	0.00
T6 Utility Class 5	Diesel	2.56E-05	0.29	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 5	Electricity	3.66E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 5	Natural Gas	5.78E-08	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Diesel	4.84E-06	0.06	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Electricity	6.92E-06	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Natural Gas	1.09E-08	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	6.63E-06	0.08	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Electricity	9.73E-06	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Natural Gas	1.50E-08	0.00	0.00	0.00	0.00	0.00	0.00
T6TS	Gasoline	5.87E-04	0.29	0.01	0.02	0.00	0.01	0.00
T6TS	Electricity	6.79E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 CAIRP Class 8	Diesel	1.54E-02	219.78	2.89	0.09	0.03	0.35	0.16
T7 CAIRP Class 8	Electricity	4.43E-03	0.00	0.00	0.00	0.00	0.05	0.02
T7 NNOOS Class 8	Diesel	2.34E-02	320.36	4.87	0.14	0.04	0.54	0.24
T7 NOOS Class 8	Diesel	8.51E-03	116.31	1.82	0.05	0.02	0.20	0.09
T7 Other Port Class 8	Diesel	2.53E-04	3.88	0.05	0.00	0.00	0.01	0.00
T7 Other Port Class 8	Electricity	6.40E-05	0.00	0.00	0.00	0.00	0.00	0.00
T7 POAK Class 8	Diesel	6.15E-04	9.40	0.12	0.01	0.00	0.01	0.01
T7 POAK Class 8	Electricity	1.41E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 POLA Class 8	Diesel	9.19E-04	14.25	0.20	0.01	0.00	0.02	0.01
T7 POLA Class 8	Electricity	1.61E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 POLA Class 8	Natural Gas	4.28E-06	0.07	0.00	0.00	0.00	0.00	0.00
T7 Public Class 8	Diesel	4.27E-04	7.70	0.13	0.01	0.00	0.01	0.00
T7 Public Class 8	Electricity	3.30E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 Public Class 8	Natural Gas	5.39E-05	1.14	0.00	0.07	0.00	0.00	0.00
T7 Single Concrete/Transit Mix Class 8	Diesel	1.51E-04	2.45	0.02	0.00	0.00	0.00	0.00
T7 Single Concrete/Transit Mix Class 8	Electricity	2.06E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 Single Concrete/Transit Mix Class 8	Natural Gas	5.51E-06	0.09	0.00	0.00	0.00	0.00	0.00
T7 Single Dump Class 8	Diesel	6.87E-04	11.46	0.12	0.01	0.00	0.02	0.01
T7 Single Dump Class 8	Electricity	5.97E-04	0.00	0.00	0.00	0.00	0.01	0.00
T7 Single Dump Class 8	Natural Gas	2.47E-05	0.41	0.00	0.02	0.00	0.00	0.00
T7 Single Other Class 8	Diesel	1.86E-03	30.63	0.29	0.01	0.00	0.04	0.02
T7 Single Other Class 8	Electricity	1.86E-03	0.00	0.00	0.00	0.00	0.02	0.01
T7 Single Other Class 8	Natural Gas	6.73E-05	1.10	0.00	0.04	0.00	0.00	0.00
T7 SWCV Class 8	Diesel	1.36E-04	5.20	0.05	0.00	0.00	0.01	0.00
T7 SWCV Class 8	Electricity	3.10E-04	0.00	0.00	0.00	0.00	0.01	0.00
T7 SWCV Class 8	Natural Gas	3.27E-04	6.29	0.02	0.52	0.00	0.01	0.00
T7 Tractor Class 8	Diesel	1.14E-02	163.14	2.11	0.09	0.02	0.26	0.11
T7 Tractor Class 8	Electricity	2.26E-03	0.00	0.00	0.00	0.00	0.03	0.01
T7 Tractor Class 8	Natural Gas	1.79E-04	2.80	0.00	0.11	0.00	0.00	0.00
T7 Utility Class 8	Diesel	2.76E-05	0.48	0.00	0.00	0.00	0.00	0.00
T7 Utility Class 8	Electricity	2.15E-05	0.00	0.00	0.00	0.00	0.00	0.00
T7IS	Gasoline	2.02E-06	0.01	0.00	0.01	0.00	0.00	0.00
T7IS	Electricity	2.17E-06	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Diesel	3.47E-07	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Electricity	6.32E-04	0.00	0.00	0.00	0.00	0.01	0.00
UBUS	Natural Gas	1.40E-06	0.02	0.00	0.00	0.00	0.00	0.00
	Total	100.00%	1296.67	16.94	79.46	0.47	4.56	1.66

Year 2045 Current GP: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**120,753,224**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
All Other Buses	Diesel	0.01%	18.73	0.00	0.00	19.51
All Other Buses	Natural Gas	0.00%	1.19	0.00	0.00	1.29
LDA	Gasoline	41.53%	11,491.87	0.06	0.17	11,537.49
LDA	Diesel	0.02%	5.39	0.00	0.00	5.61
LDA	Electricity	5.39%	0.00	0.00	0.00	0.00
LDA	Plug-in Hybrid	1.96%	295.27	0.00	0.00	295.61
LDT1	Gasoline	2.46%	788.48	0.00	0.01	791.29
LDT1	Diesel	0.00%	0.01	0.00	0.00	0.01
LDT1	Electricity	0.07%	0.00	0.00	0.00	0.00
LDT1	Plug-in Hybrid	0.06%	8.80	0.00	0.00	8.81
LDT2	Gasoline	21.73%	7,205.71	0.04	0.09	7,231.38
LDT2	Diesel	0.08%	25.26	0.00	0.00	26.32
LDT2	Electricity	0.59%	0.00	0.00	0.00	0.00
LDT2	Plug-in Hybrid	0.59%	89.27	0.00	0.00	89.37
LHD1	Gasoline	0.75%	678.22	0.00	0.00	678.68
LHD1	Diesel	0.47%	340.89	0.00	0.05	355.19
LHD1	Electricity	0.93%	0.00	0.00	0.00	0.00
LHD2	Gasoline	0.08%	79.18	0.00	0.00	79.23
LHD2	Diesel	0.22%	188.81	0.00	0.03	196.73
LHD2	Electricity	0.21%	0.00	0.00	0.00	0.00
MCY	Gasoline	0.23%	53.10	0.04	0.01	56.93
MDV	Gasoline	12.04%	4,849.19	0.02	0.05	4,864.11
MDV	Diesel	0.13%	52.79	0.00	0.01	54.99
MDV	Electricity	0.54%	0.00	0.00	0.00	0.00
MDV	Plug-in Hybrid	0.36%	53.87	0.00	0.00	53.93
MH	Gasoline	0.03%	62.78	0.00	0.00	62.94
MH	Diesel	0.02%	20.27	0.00	0.00	21.12
Motor Coach	Diesel	0.01%	19.23	0.00	0.00	20.04
OBUS	Gasoline	0.01%	19.90	0.00	0.00	19.96
OBUS	Electricity	0.01%	0.00	0.00	0.00	0.00
PTO	Diesel	0.06%	116.78	0.00	0.02	121.66
PTO	Electricity	0.05%	0.00	0.00	0.00	0.00
SBUS	Gasoline	0.02%	18.58	0.00	0.00	18.68
SBUS	Diesel	0.02%	25.40	0.00	0.00	26.46
SBUS	Electricity	0.03%	0.00	0.00	0.00	0.00
SBUS	Natural Gas	0.01%	8.55	0.02	0.00	9.53
T6 CAIRP Class 4	Diesel	0.00%	2.08	0.00	0.00	2.17
T6 CAIRP Class 4	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	0.00%	2.86	0.00	0.00	2.98
T6 CAIRP Class 5	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	0.01%	7.43	0.00	0.00	7.74
T6 CAIRP Class 6	Electricity	0.01%	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	0.07%	75.55	0.00	0.01	78.70
T6 CAIRP Class 7	Electricity	0.02%	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Diesel	0.02%	30.07	0.00	0.00	31.33
T6 Instate Delivery Class 4	Electricity	0.03%	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	0.02%	19.61	0.00	0.00	20.43
T6 Instate Delivery Class 5	Electricity	0.02%	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	0.07%	85.00	0.00	0.01	88.55
T6 Instate Delivery Class 6	Electricity	0.07%	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Diesel	0.03%	33.23	0.00	0.01	34.62
T6 Instate Delivery Class 7	Electricity	0.02%	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Natural Gas	0.00%	1.16	0.00	0.00	1.24
T6 Instate Other Class 4	Diesel	0.05%	62.87	0.00	0.01	65.49
T6 Instate Other Class 4	Electricity	0.06%	0.00	0.00	0.00	0.00
T6 Instate Other Class 5	Diesel	0.14%	177.62	0.00	0.03	185.04

Year 2045 Current GP: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**120,753,224**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T6 Instate Other Class 5	Electricity	0.16%	0.00	0.00	0.00	0.00
T6 Instate Other Class 6	Diesel	0.11%	131.95	0.00	0.02	137.46
T6 Instate Other Class 6	Electricity	0.12%	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Diesel	0.09%	109.22	0.00	0.02	113.78
T6 Instate Other Class 7	Electricity	0.07%	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Natural Gas	0.00%	2.37	0.00	0.00	2.55
T6 Instate Tractor Class 6	Diesel	0.00%	1.71	0.00	0.00	1.78
T6 Instate Tractor Class 6	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	0.21%	236.22	0.00	0.04	246.08
T6 Instate Tractor Class 7	Electricity	0.05%	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Natural Gas	0.01%	5.80	0.00	0.00	6.24
T6 OOS Class 4	Diesel	0.00%	2.69	0.00	0.00	2.80
T6 OOS Class 5	Diesel	0.00%	3.70	0.00	0.00	3.85
T6 OOS Class 6	Diesel	0.01%	9.63	0.00	0.00	10.04
T6 OOS Class 7	Diesel	0.06%	63.13	0.00	0.01	65.76
T6 Public Class 4	Diesel	0.00%	3.13	0.00	0.00	3.26
T6 Public Class 4	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	0.00%	0.37	0.00	0.00	0.40
T6 Public Class 5	Diesel	0.01%	8.77	0.00	0.00	9.13
T6 Public Class 5	Electricity	0.01%	0.00	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	0.00%	1.13	0.00	0.00	1.22
T6 Public Class 6	Diesel	0.01%	13.46	0.00	0.00	14.02
T6 Public Class 6	Electricity	0.01%	0.00	0.00	0.00	0.00
T6 Public Class 6	Natural Gas	0.00%	1.62	0.00	0.00	1.75
T6 Public Class 7	Diesel	0.02%	22.60	0.00	0.00	23.54
T6 Public Class 7	Electricity	0.01%	0.00	0.00	0.00	0.00
T6 Public Class 7	Natural Gas	0.00%	2.91	0.00	0.00	3.15
T6 Utility Class 5	Diesel	0.00%	3.14	0.00	0.00	3.27
T6 Utility Class 5	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 Utility Class 5	Natural Gas	0.00%	0.01	0.00	0.00	0.01
T6 Utility Class 6	Diesel	0.00%	0.59	0.00	0.00	0.62
T6 Utility Class 6	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 Utility Class 6	Natural Gas	0.00%	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	0.00%	0.81	0.00	0.00	0.85
T6 Utility Class 7	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 Utility Class 7	Natural Gas	0.00%	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.06%	109.37	0.00	0.00	109.51
T6TS	Electricity	0.07%	0.00	0.00	0.00	0.00
T7 CAIRP Class 8	Diesel	1.54%	2,374.26	0.00	0.37	2,473.42
T7 CAIRP Class 8	Electricity	0.44%	0.00	0.00	0.00	0.00
T7 NNOOS Class 8	Diesel	2.34%	3,460.82	0.00	0.55	3,605.36
T7 NOOS Class 8	Diesel	0.85%	1,256.54	0.00	0.20	1,309.02
T7 Other Port Class 8	Diesel	0.03%	41.89	0.00	0.01	43.63
T7 Other Port Class 8	Electricity	0.01%	0.00	0.00	0.00	0.00
T7 POAK Class 8	Diesel	0.06%	101.58	0.00	0.02	105.82
T7 POAK Class 8	Electricity	0.01%	0.00	0.00	0.00	0.00
T7 POLA Class 8	Diesel	0.09%	153.98	0.00	0.02	160.41
T7 POLA Class 8	Electricity	0.02%	0.00	0.00	0.00	0.00
T7 POLA Class 8	Natural Gas	0.00%	0.60	0.00	0.00	0.64
T7 Public Class 8	Diesel	0.04%	83.22	0.00	0.01	86.70
T7 Public Class 8	Electricity	0.03%	0.00	0.00	0.00	0.00
T7 Public Class 8	Natural Gas	0.01%	9.50	0.01	0.00	10.33
T7 Single Concrete/Transit Mix	Diesel	0.02%	26.49	0.00	0.00	27.59
T7 Single Concrete/Transit Mix	Electricity	0.02%	0.00	0.00	0.00	0.00
T7 Single Concrete/Transit Mix	Natural Gas	0.00%	0.75	0.00	0.00	0.81
T7 Single Dump Class 8	Diesel	0.07%	123.85	0.00	0.02	129.03

Year 2045 Current GP: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**120,753,224**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T7 Single Dump Class 8	Electricity	0.06%	0.00	0.00	0.00	0.00
T7 Single Dump Class 8	Natural Gas	0.00%	3.44	0.00	0.00	3.71
T7 Single Other Class 8	Diesel	0.19%	330.89	0.00	0.05	344.71
T7 Single Other Class 8	Electricity	0.19%	0.00	0.00	0.00	0.00
T7 Single Other Class 8	Natural Gas	0.01%	9.22	0.01	0.00	9.96
T7 SWCV Class 8	Diesel	0.01%	56.20	0.00	0.01	58.55
T7 SWCV Class 8	Electricity	0.03%	0.00	0.00	0.00	0.00
T7 SWCV Class 8	Natural Gas	0.03%	52.51	0.02	0.01	55.91
T7 Tractor Class 8	Diesel	1.14%	1,762.37	0.00	0.28	1,835.97
T7 Tractor Class 8	Electricity	0.23%	0.00	0.00	0.00	0.00
T7 Tractor Class 8	Natural Gas	0.02%	23.34	0.02	0.00	25.22
T7 Utility Class 8	Diesel	0.00%	5.15	0.00	0.00	5.37
T7 Utility Class 8	Electricity	0.00%	0.00	0.00	0.00	0.00
T7IS	Gasoline	0.00%	0.44	0.00	0.00	0.45
T7IS	Electricity	0.00%	0.00	0.00	0.00	0.00
UBUS	Diesel	0.00%	0.03	0.00	0.00	0.03
UBUS	Electricity	0.06%	0.00	0.00	0.00	0.00
UBUS	Natural Gas	0.00%	0.13	0.00	0.00	0.14
	Total	100.00%	37,626.52	0.27	2.21	38,219.01

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
SOI Annual VMT	**24,618,783**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
All Other Buses	Diesel	1.49E-04	3.82	0.00	0.00	3.98
All Other Buses	Natural Gas	1.08E-05	0.24	0.00	0.00	0.26
LDA	Gasoline	4.15E-01	2,342.93	0.01	0.03	2,352.23
LDA	Diesel	2.44E-04	1.10	0.00	0.00	1.14
LDA	Electricity	5.39E-02	0.00	0.00	0.00	0.00
LDA	Plug-in Hybrid	1.96E-02	60.20	0.00	0.00	60.27
LDT1	Gasoline	2.46E-02	160.75	0.00	0.00	161.33
LDT1	Diesel	2.89E-07	0.00	0.00	0.00	0.00
LDT1	Electricity	7.36E-04	0.00	0.00	0.00	0.00
LDT1	Plug-in Hybrid	5.86E-04	1.79	0.00	0.00	1.80
LDT2	Gasoline	2.17E-01	1,469.08	0.01	0.02	1,474.31
LDT2	Diesel	8.28E-04	5.15	0.00	0.00	5.37
LDT2	Electricity	5.85E-03	0.00	0.00	0.00	0.00
LDT2	Plug-in Hybrid	5.94E-03	18.20	0.00	0.00	18.22
LHD1	Gasoline	7.49E-03	138.27	0.00	0.00	138.37
LHD1	Diesel	4.67E-03	69.50	0.00	0.01	72.41
LHD1	Electricity	9.28E-03	0.00	0.00	0.00	0.00
LHD2	Gasoline	7.76E-04	16.14	0.00	0.00	16.15
LHD2	Diesel	2.21E-03	38.49	0.00	0.01	40.11
LHD2	Electricity	2.11E-03	0.00	0.00	0.00	0.00
MCY	Gasoline	2.33E-03	10.83	0.01	0.00	11.61
MDV	Gasoline	1.20E-01	988.64	0.00	0.01	991.68
MDV	Diesel	1.32E-03	10.76	0.00	0.00	11.21
MDV	Electricity	5.37E-03	0.00	0.00	0.00	0.00
MDV	Plug-in Hybrid	3.58E-03	10.98	0.00	0.00	11.00
MH	Gasoline	2.67E-04	12.80	0.00	0.00	12.83
MH	Diesel	1.54E-04	4.13	0.00	0.00	4.31
Motor Coach	Diesel	1.04E-04	3.92	0.00	0.00	4.09
OBUS	Gasoline	1.07E-04	4.06	0.00	0.00	4.07

Year 2045 Current GP: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**120,753,224**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
OBUS	Electricity	1.22E-04	0.00	0.00	0.00	0.00
PTO	Diesel	5.55E-04	23.81	0.00	0.00	24.80
PTO	Electricity	5.29E-04	0.00	0.00	0.00	0.00
SBUS	Gasoline	2.04E-04	3.79	0.00	0.00	3.81
SBUS	Diesel	2.03E-04	5.18	0.00	0.00	5.39
SBUS	Electricity	2.79E-04	0.00	0.00	0.00	0.00
SBUS	Natural Gas	6.54E-05	1.74	0.00	0.00	1.94
T6 CAIRP Class 4	Diesel	1.70E-05	0.42	0.00	0.00	0.44
T6 CAIRP Class 4	Electricity	2.39E-05	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	2.33E-05	0.58	0.00	0.00	0.61
T6 CAIRP Class 5	Electricity	3.27E-05	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	6.07E-05	1.52	0.00	0.00	1.58
T6 CAIRP Class 6	Electricity	8.59E-05	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	6.98E-04	15.40	0.00	0.00	16.05
T6 CAIRP Class 7	Electricity	2.21E-04	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Diesel	2.38E-04	6.13	0.00	0.00	6.39
T6 Instate Delivery Class 4	Electricity	2.56E-04	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	1.55E-04	4.00	0.00	0.00	4.16
T6 Instate Delivery Class 5	Electricity	1.66E-04	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	6.72E-04	17.33	0.00	0.00	18.05
T6 Instate Delivery Class 6	Electricity	7.22E-04	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Diesel	2.55E-04	6.78	0.00	0.00	7.06
T6 Instate Delivery Class 7	Electricity	1.54E-04	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Natural Gas	9.01E-06	0.24	0.00	0.00	0.25
T6 Instate Other Class 4	Diesel	5.13E-04	12.82	0.00	0.00	13.35
T6 Instate Other Class 4	Electricity	5.85E-04	0.00	0.00	0.00	0.00
T6 Instate Other Class 5	Diesel	1.45E-03	36.21	0.00	0.01	37.72
T6 Instate Other Class 5	Electricity	1.65E-03	0.00	0.00	0.00	0.00
T6 Instate Other Class 6	Diesel	1.08E-03	26.90	0.00	0.00	28.02
T6 Instate Other Class 6	Electricity	1.22E-03	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Diesel	8.84E-04	22.27	0.00	0.00	23.20
T6 Instate Other Class 7	Electricity	6.63E-04	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Natural Gas	2.18E-05	0.48	0.00	0.00	0.52
T6 Instate Tractor Class 6	Diesel	1.39E-05	0.35	0.00	0.00	0.36
T6 Instate Tractor Class 6	Electricity	1.65E-05	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	2.09E-03	48.16	0.00	0.01	50.17
T6 Instate Tractor Class 7	Electricity	4.88E-04	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Natural Gas	5.43E-05	1.18	0.00	0.00	1.27
T6 OOS Class 4	Diesel	2.34E-05	0.55	0.00	0.00	0.57
T6 OOS Class 5	Diesel	3.21E-05	0.75	0.00	0.00	0.79
T6 OOS Class 6	Diesel	8.39E-05	1.96	0.00	0.00	2.05
T6 OOS Class 7	Diesel	6.10E-04	12.87	0.00	0.00	13.41
T6 Public Class 4	Diesel	2.38E-05	0.64	0.00	0.00	0.66
T6 Public Class 4	Electricity	2.34E-05	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	3.16E-06	0.08	0.00	0.00	0.08
T6 Public Class 5	Diesel	6.64E-05	1.79	0.00	0.00	1.86
T6 Public Class 5	Electricity	6.52E-05	0.00	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	9.51E-06	0.23	0.00	0.00	0.25
T6 Public Class 6	Diesel	1.02E-04	2.74	0.00	0.00	2.86
T6 Public Class 6	Electricity	9.93E-05	0.00	0.00	0.00	0.00
T6 Public Class 6	Natural Gas	1.37E-05	0.33	0.00	0.00	0.36
T6 Public Class 7	Diesel	1.74E-04	4.61	0.00	0.00	4.80
T6 Public Class 7	Electricity	1.37E-04	0.00	0.00	0.00	0.00
T6 Public Class 7	Natural Gas	2.46E-05	0.59	0.00	0.00	0.64
T6 Utility Class 5	Diesel	2.56E-05	0.64	0.00	0.00	0.67
T6 Utility Class 5	Electricity	3.66E-05	0.00	0.00	0.00	0.00

Year 2045 Current GP: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**120,753,224**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T6 Utility Class 5	Natural Gas	5.78E-08	0.00	0.00	0.00	0.00
T6 Utility Class 6	Diesel	4.84E-06	0.12	0.00	0.00	0.13
T6 Utility Class 6	Electricity	6.92E-06	0.00	0.00	0.00	0.00
T6 Utility Class 6	Natural Gas	1.09E-08	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	6.63E-06	0.17	0.00	0.00	0.17
T6 Utility Class 7	Electricity	9.73E-06	0.00	0.00	0.00	0.00
T6 Utility Class 7	Natural Gas	1.50E-08	0.00	0.00	0.00	0.00
T6TS	Gasoline	5.87E-04	22.30	0.00	0.00	22.33
T6TS	Electricity	6.79E-04	0.00	0.00	0.00	0.00
T7 CAIRP Class 8	Diesel	1.54E-02	484.06	0.00	0.08	504.27
T7 CAIRP Class 8	Electricity	4.43E-03	0.00	0.00	0.00	0.00
T7 NNOOS Class 8	Diesel	2.34E-02	705.58	0.00	0.11	735.05
T7 NOOS Class 8	Diesel	8.51E-03	256.18	0.00	0.04	266.88
T7 Other Port Class 8	Diesel	2.53E-04	8.54	0.00	0.00	8.90
T7 Other Port Class 8	Electricity	6.40E-05	0.00	0.00	0.00	0.00
T7 POAK Class 8	Diesel	6.15E-04	20.71	0.00	0.00	21.57
T7 POAK Class 8	Electricity	1.41E-04	0.00	0.00	0.00	0.00
T7 POLA Class 8	Diesel	9.19E-04	31.39	0.00	0.00	32.70
T7 POLA Class 8	Electricity	1.61E-04	0.00	0.00	0.00	0.00
T7 POLA Class 8	Natural Gas	4.28E-06	0.12	0.00	0.00	0.13
T7 Public Class 8	Diesel	4.27E-04	16.97	0.00	0.00	17.68
T7 Public Class 8	Electricity	3.30E-04	0.00	0.00	0.00	0.00
T7 Public Class 8	Natural Gas	5.39E-05	1.94	0.00	0.00	2.11
T7 Single Concrete/Transit Mix	Diesel	1.51E-04	5.40	0.00	0.00	5.63
T7 Single Concrete/Transit Mix	Electricity	2.06E-04	0.00	0.00	0.00	0.00
T7 Single Concrete/Transit Mix	Natural Gas	5.51E-06	0.15	0.00	0.00	0.16
T7 Single Dump Class 8	Diesel	6.87E-04	25.25	0.00	0.00	26.31
T7 Single Dump Class 8	Electricity	5.97E-04	0.00	0.00	0.00	0.00
T7 Single Dump Class 8	Natural Gas	2.47E-05	0.70	0.00	0.00	0.76
T7 Single Other Class 8	Diesel	1.86E-03	67.46	0.00	0.01	70.28
T7 Single Other Class 8	Electricity	1.86E-03	0.00	0.00	0.00	0.00
T7 Single Other Class 8	Natural Gas	6.73E-05	1.88	0.00	0.00	2.03
T7 SWCV Class 8	Diesel	1.36E-04	11.46	0.00	0.00	11.94
T7 SWCV Class 8	Electricity	3.10E-04	0.00	0.00	0.00	0.00
T7 SWCV Class 8	Natural Gas	3.27E-04	10.71	0.00	0.00	11.40
T7 Tractor Class 8	Diesel	1.14E-02	359.31	0.00	0.06	374.31
T7 Tractor Class 8	Electricity	2.26E-03	0.00	0.00	0.00	0.00
T7 Tractor Class 8	Natural Gas	1.79E-04	4.76	0.00	0.00	5.14
T7 Utility Class 8	Diesel	2.76E-05	1.05	0.00	0.00	1.09
T7 Utility Class 8	Electricity	2.15E-05	0.00	0.00	0.00	0.00
T7IS	Gasoline	2.02E-06	0.09	0.00	0.00	0.09
T7IS	Electricity	2.17E-06	0.00	0.00	0.00	0.00
UBUS	Diesel	3.47E-07	0.01	0.00	0.00	0.01
UBUS	Electricity	6.32E-04	0.00	0.00	0.00	0.00
UBUS	Natural Gas	1.40E-06	0.03	0.00	0.00	0.03
	Total	100.00%	7,671.18	0.06	0.45	7,791.97

Year 2045 Proposed GP: Criteria Air Pollutants

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

City Daily VMT	334,407				lbs/day			
Vehicle Type	Fuel Type	Percent of VMT	ROG	NOx	CO	SOx	PM10	PM2.5
All Other Buses	Diesel	0.01%	8.17	0.13	0.02	0.00	0.01	0.00
All Other Buses	Natural Gas	0.00%	0.67	0.00	0.03	0.00	0.00	0.00
LDA	Gasoline	41.53%	460.34	6.25	167.17	0.69	5.46	1.76
LDA	Diesel	0.02%	2.35	0.00	0.04	0.00	0.00	0.00
LDA	Electricity	5.39%	0.00	0.00	0.00	0.00	0.49	0.14
LDA	Plug-in Hybrid	1.96%	3.25	0.04	3.03	0.02	0.18	0.05
LDT1	Gasoline	2.46%	28.37	0.40	10.53	0.05	0.35	0.12
LDT1	Diesel	0.00%	0.01	0.00	0.00	0.00	0.00	0.00
LDT1	Electricity	0.07%	0.00	0.00	0.00	0.00	0.01	0.00
LDT1	Plug-in Hybrid	0.06%	0.10	0.00	0.09	0.00	0.01	0.00
LDT2	Gasoline	21.73%	256.91	3.76	102.14	0.43	3.11	1.01
LDT2	Diesel	0.08%	11.02	0.02	0.12	0.00	0.01	0.01
LDT2	Electricity	0.59%	0.00	0.00	0.00	0.00	0.05	0.02
LDT2	Plug-in Hybrid	0.59%	0.98	0.01	0.92	0.01	0.05	0.02
LHD1	Gasoline	0.75%	4.47	0.12	3.29	0.04	0.48	0.17
LHD1	Diesel	0.47%	148.73	1.29	0.87	0.02	0.38	0.17
LHD1	Electricity	0.93%	0.00	0.00	0.00	0.00	0.32	0.11
LHD2	Gasoline	0.08%	0.57	0.01	0.34	0.00	0.06	0.02
LHD2	Diesel	0.22%	82.38	0.89	0.52	0.01	0.21	0.10
LHD2	Electricity	0.21%	0.00	0.00	0.00	0.00	0.08	0.03
MCY	Gasoline	0.23%	28.05	0.83	18.39	0.00	0.03	0.01
MDV	Gasoline	12.04%	149.21	2.38	59.45	0.29	1.74	0.57
MDV	Diesel	0.13%	23.03	0.01	0.21	0.00	0.02	0.01
MDV	Electricity	0.54%	0.00	0.00	0.00	0.00	0.05	0.01
MDV	Plug-in Hybrid	0.36%	0.58	0.01	0.55	0.00	0.03	0.01
MH	Gasoline	0.03%	1.62	0.04	0.03	0.00	0.01	0.00
MH	Diesel	0.02%	8.85	0.30	0.03	0.00	0.01	0.01
Motor Coach	Diesel	0.01%	8.39	0.07	0.00	0.00	0.01	0.00
OBUS	Gasoline	0.01%	0.61	0.02	0.04	0.00	0.00	0.00
OBUS	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
PTO	Diesel	0.06%	50.95	1.03	0.07	0.01	0.00	0.00
PTO	Electricity	0.05%	0.00	0.00	0.00	0.00	0.00	0.00
SBUS	Gasoline	0.02%	1.03	0.03	0.03	0.00	0.01	0.00
SBUS	Diesel	0.02%	11.08	0.06	0.01	0.00	0.01	0.00
SBUS	Electricity	0.03%	0.00	0.00	0.00	0.00	0.01	0.00
SBUS	Natural Gas	0.01%	4.83	0.01	0.32	0.00	0.00	0.00
T6 CAIRP Class 4	Diesel	0.00%	0.91	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 4	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	0.00%	1.25	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	0.01%	3.24	0.01	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	0.07%	32.96	0.10	0.02	0.00	0.03	0.01
T6 CAIRP Class 7	Electricity	0.02%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Delivery Class 4	Diesel	0.02%	13.12	0.06	0.01	0.00	0.01	0.00
T6 Instate Delivery Class 4	Electricity	0.03%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Delivery Class 5	Diesel	0.02%	8.56	0.04	0.01	0.00	0.01	0.00
T6 Instate Delivery Class 5	Electricity	0.02%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	0.07%	37.09	0.18	0.03	0.00	0.03	0.01
T6 Instate Delivery Class 6	Electricity	0.07%	0.00	0.00	0.00	0.00	0.02	0.01
T6 Instate Delivery Class 7	Diesel	0.03%	14.50	0.11	0.01	0.00	0.01	0.00
T6 Instate Delivery Class 7	Electricity	0.02%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.65	0.00	0.03	0.00	0.00	0.00
T6 Instate Other Class 4	Diesel	0.05%	27.43	0.10	0.02	0.00	0.02	0.01
T6 Instate Other Class 4	Electricity	0.06%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Other Class 5	Diesel	0.14%	77.50	0.29	0.05	0.01	0.06	0.02
T6 Instate Other Class 5	Electricity	0.16%	0.00	0.00	0.00	0.00	0.04	0.01
T6 Instate Other Class 6	Diesel	0.11%	57.57	0.22	0.03	0.01	0.05	0.02
T6 Instate Other Class 6	Electricity	0.12%	0.00	0.00	0.00	0.00	0.03	0.01
T6 Instate Other Class 7	Diesel	0.09%	47.65	0.31	0.03	0.01	0.04	0.01
T6 Instate Other Class 7	Electricity	0.07%	0.00	0.00	0.00	0.00	0.02	0.01
T6 Instate Other Class 7	Natural Gas	0.00%	1.34	0.00	0.04	0.00	0.00	0.00
T6 Instate Tractor Class 6	Diesel	0.00%	0.75	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 6	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00

T6 Instate Tractor Class 7	Diesel	0.21%	103.06	0.60	0.08	0.01	0.09	0.03
T6 Instate Tractor Class 7	Electricity	0.05%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Tractor Class 7	Natural Gas	0.01%	3.27	0.00	0.11	0.00	0.00	0.00
T6 OOS Class 4	Diesel	0.00%	1.17	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 5	Diesel	0.00%	1.61	0.01	0.00	0.00	0.00	0.00
T6 OOS Class 6	Diesel	0.01%	4.20	0.01	0.00	0.00	0.00	0.00
T6 OOS Class 7	Diesel	0.06%	27.54	0.10	0.01	0.00	0.03	0.01
T6 Public Class 4	Diesel	0.00%	1.36	0.01	0.00	0.00	0.00	0.00
T6 Public Class 4	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	0.00%	0.21	0.00	0.01	0.00	0.00	0.00
T6 Public Class 5	Diesel	0.01%	3.83	0.03	0.00	0.00	0.00	0.00
T6 Public Class 5	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	0.00%	0.64	0.00	0.02	0.00	0.00	0.00
T6 Public Class 6	Diesel	0.01%	5.87	0.04	0.00	0.00	0.00	0.00
T6 Public Class 6	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 6	Natural Gas	0.00%	0.92	0.00	0.03	0.00	0.00	0.00
T6 Public Class 7	Diesel	0.02%	9.86	0.05	0.01	0.00	0.01	0.00
T6 Public Class 7	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 7	Natural Gas	0.00%	1.65	0.00	0.06	0.00	0.00	0.00
T6 Utility Class 5	Diesel	0.00%	1.37	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 5	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 5	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Diesel	0.00%	0.26	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	0.00%	0.36	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Natural Gas	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.06%	1.37	0.03	0.08	0.01	0.03	0.01
T6TS	Electricity	0.07%	0.00	0.00	0.00	0.00	0.02	0.01
T7 CAIRP Class 8	Diesel	1.54%	1,035.92	13.64	0.44	0.14	1.67	0.75
T7 CAIRP Class 8	Electricity	0.44%	0.00	0.00	0.00	0.00	0.25	0.08
T7 NNOOS Class 8	Diesel	2.34%	1,510.00	22.94	0.65	0.20	2.54	1.13
T7 NOOS Class 8	Diesel	0.85%	548.24	8.57	0.24	0.07	0.93	0.42
T7 Other Port Class 8	Diesel	0.03%	18.28	0.23	0.01	0.00	0.03	0.01
T7 Other Port Class 8	Electricity	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T7 POAK Class 8	Diesel	0.06%	44.32	0.58	0.03	0.01	0.07	0.03
T7 POAK Class 8	Electricity	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T7 POLA Class 8	Diesel	0.09%	67.18	0.95	0.05	0.01	0.10	0.04
T7 POLA Class 8	Electricity	0.02%	0.00	0.00	0.00	0.00	0.01	0.00
T7 POLA Class 8	Natural Gas	0.00%	0.34	0.00	0.02	0.00	0.00	0.00
T7 Public Class 8	Diesel	0.04%	36.31	0.59	0.05	0.00	0.05	0.02
T7 Public Class 8	Electricity	0.03%	0.00	0.00	0.00	0.00	0.02	0.01
T7 Public Class 8	Natural Gas	0.01%	5.36	0.01	0.32	0.00	0.01	0.00
T7 Single Concrete/Transit Mix Class 8	Diesel	0.02%	11.56	0.09	0.00	0.00	0.02	0.01
T7 Single Concrete/Transit Mix Class 8	Electricity	0.02%	0.00	0.00	0.00	0.00	0.01	0.00
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.00%	0.42	0.00	0.02	0.00	0.00	0.00
T7 Single Dump Class 8	Diesel	0.07%	54.04	0.55	0.03	0.01	0.07	0.03
T7 Single Dump Class 8	Electricity	0.06%	0.00	0.00	0.00	0.00	0.04	0.01
T7 Single Dump Class 8	Natural Gas	0.00%	1.94	0.00	0.08	0.00	0.00	0.00
T7 Single Other Class 8	Diesel	0.19%	144.37	1.36	0.07	0.02	0.19	0.08
T7 Single Other Class 8	Electricity	0.19%	0.00	0.00	0.00	0.00	0.11	0.03
T7 Single Other Class 8	Natural Gas	0.01%	5.20	0.01	0.21	0.00	0.01	0.00
T7 SWCV Class 8	Diesel	0.01%	24.52	0.21	0.01	0.00	0.03	0.01
T7 SWCV Class 8	Electricity	0.03%	0.00	0.00	0.00	0.00	0.03	0.01
T7 SWCV Class 8	Natural Gas	0.03%	29.64	0.09	2.45	0.00	0.06	0.02
T7 Tractor Class 8	Diesel	1.14%	768.94	9.96	0.40	0.10	1.21	0.50
T7 Tractor Class 8	Electricity	0.23%	0.00	0.00	0.00	0.00	0.13	0.04
T7 Tractor Class 8	Natural Gas	0.02%	13.18	0.02	0.50	0.00	0.02	0.01
T7 Utility Class 8	Diesel	0.00%	2.25	0.02	0.00	0.00	0.00	0.00
T7 Utility Class 8	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T7IS	Gasoline	0.00%	0.07	0.00	0.04	0.00	0.00	0.00
T7IS	Electricity	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Diesel	0.00%	0.01	0.00	0.00	0.00	0.00	0.00
UBUS	Electricity	0.06%	0.00	0.00	0.00	0.00	0.04	0.01
UBUS	Natural Gas	0.00%	0.08	0.00	0.00	0.00	0.00	0.00
	Total	100.00%	6111.79	79.87	374.54	2.23	21.51	7.84

SOI VMT	64,317				lbs/day			
Vehicle Type	**Fuel Type**	**Percent of VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
All Other Buses	Diesel	1.49E-04	1.57	0.03	0.00	0.00	0.00	0.00
All Other Buses	Natural Gas	1.08E-05	0.13	0.00	0.01	0.00	0.00	0.00
LDA	Gasoline	4.15E-01	88.54	1.20	32.15	0.13	0.03	0.47
LDA	Diesel	2.44E-04	0.45	0.00	0.01	0.00	0.00	0.00
LDA	Electricity	5.39E-02	0.00	0.00	0.00	0.00	0.00	0.06
LDA	Plug-in Hybrid	1.96E-02	0.63	0.01	0.58	0.00	0.00	0.02
LDT1	Gasoline	2.46E-02	5.46	0.08	2.03	0.01	0.00	0.03
LDT1	Diesel	2.89E-07	0.00	0.00	0.00	0.00	0.00	0.00
LDT1	Electricity	7.36E-04	0.00	0.00	0.00	0.00	0.00	0.00
LDT1	Plug-in Hybrid	5.86E-04	0.02	0.00	0.02	0.00	0.00	0.00
LDT2	Gasoline	2.17E-01	49.41	0.72	19.65	0.08	0.02	0.25
LDT2	Diesel	8.28E-04	2.12	0.00	0.02	0.00	0.00	0.00
LDT2	Electricity	5.85E-03	0.00	0.00	0.00	0.00	0.00	0.01
LDT2	Plug-in Hybrid	5.94E-03	0.19	0.00	0.18	0.00	0.00	0.01
LHD1	Gasoline	7.49E-03	0.86	0.02	0.63	0.01	0.00	0.01
LHD1	Diesel	4.67E-03	28.61	0.25	0.17	0.00	0.01	0.01
LHD1	Electricity	9.28E-03	0.00	0.00	0.00	0.00	0.00	0.01
LHD2	Gasoline	7.76E-04	0.11	0.00	0.07	0.00	0.00	0.00
LHD2	Diesel	2.21E-03	15.84	0.17	0.10	0.00	0.01	0.00
LHD2	Electricity	2.11E-03	0.00	0.00	0.00	0.00	0.00	0.00
MCY	Gasoline	2.33E-03	5.39	0.16	3.54	0.00	0.00	0.00
MDV	Gasoline	1.20E-01	28.70	0.46	11.43	0.06	0.01	0.14
MDV	Diesel	1.32E-03	4.43	0.00	0.04	0.00	0.00	0.00
MDV	Electricity	5.37E-03	0.00	0.00	0.00	0.00	0.00	0.01
MDV	Plug-in Hybrid	3.58E-03	0.11	0.00	0.11	0.00	0.00	0.00
MH	Gasoline	2.67E-04	0.31	0.01	0.01	0.00	0.00	0.00
MH	Diesel	1.54E-04	1.70	0.06	0.01	0.00	0.00	0.00
Motor Coach	Diesel	1.04E-04	1.61	0.01	0.00	0.00	0.00	0.00
OBUS	Gasoline	1.07E-04	0.12	0.00	0.01	0.00	0.00	0.00
OBUS	Electricity	1.22E-04	0.00	0.00	0.00	0.00	0.00	0.00
PTO	Diesel	5.55E-04	9.80	0.20	0.01	0.00	0.00	0.00
PTO	Electricity	5.29E-04	0.00	0.00	0.00	0.00	0.00	0.00
SBUS	Gasoline	2.04E-04	0.20	0.00	0.01	0.00	0.00	0.00
SBUS	Diesel	2.03E-04	2.13	0.01	0.00	0.00	0.00	0.00
SBUS	Electricity	2.79E-04	0.00	0.00	0.00	0.00	0.00	0.00
SBUS	Natural Gas	6.54E-05	0.93	0.00	0.06	0.00	0.00	0.00
T6 CAIRP Class 4	Diesel	1.70E-05	0.17	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 4	Electricity	2.39E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	2.33E-05	0.24	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Electricity	3.27E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	6.07E-05	0.62	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Electricity	8.59E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	6.98E-04	6.34	0.02	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Electricity	2.21E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Diesel	2.38E-04	2.52	0.01	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Electricity	2.56E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	1.55E-04	1.65	0.01	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 5	Electricity	1.66E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	6.72E-04	7.13	0.03	0.01	0.00	0.00	0.00
T6 Instate Delivery Class 6	Electricity	7.22E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Diesel	2.55E-04	2.79	0.02	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Electricity	1.54E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Natural Gas	9.01E-06	0.13	0.00	0.00	0.00	0.00	0.00
T6 Instate Other Class 4	Diesel	5.13E-04	5.28	0.02	0.00	0.00	0.00	0.00
T6 Instate Other Class 4	Electricity	5.85E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Other Class 5	Diesel	1.45E-03	14.91	0.06	0.01	0.00	0.00	0.00
T6 Instate Other Class 5	Electricity	1.65E-03	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Other Class 6	Diesel	1.08E-03	11.07	0.04	0.01	0.00	0.00	0.00
T6 Instate Other Class 6	Electricity	1.22E-03	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Diesel	8.84E-04	9.16	0.06	0.01	0.00	0.00	0.00
T6 Instate Other Class 7	Electricity	6.63E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Natural Gas	2.18E-05	0.26	0.00	0.01	0.00	0.00	0.00
T6 Instate Tractor Class 6	Diesel	1.39E-05	0.14	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 6	Electricity	1.65E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	2.09E-03	19.82	0.12	0.01	0.00	0.00	0.00
T6 Instate Tractor Class 7	Electricity	4.88E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Natural Gas	5.43E-05	0.63	0.00	0.02	0.00	0.00	0.00

T6 OOS Class 4	Diesel	2.34E-05	0.23	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 5	Diesel	3.21E-05	0.31	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 6	Diesel	8.39E-05	0.81	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 7	Diesel	6.10E-04	5.30	0.02	0.00	0.00	0.00	0.00
T6 Public Class 4	Diesel	2.38E-05	0.26	0.00	0.00	0.00	0.00	0.00
T6 Public Class 4	Electricity	2.34E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	3.16E-06	0.04	0.00	0.00	0.00	0.00	0.00
T6 Public Class 5	Diesel	6.64E-05	0.74	0.01	0.00	0.00	0.00	0.00
T6 Public Class 5	Electricity	6.52E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	9.51E-06	0.12	0.00	0.00	0.00	0.00	0.00
T6 Public Class 6	Diesel	1.02E-04	1.13	0.01	0.00	0.00	0.00	0.00
T6 Public Class 6	Electricity	9.93E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 6	Natural Gas	1.37E-05	0.18	0.00	0.01	0.00	0.00	0.00
T6 Public Class 7	Diesel	1.74E-04	1.90	0.01	0.00	0.00	0.00	0.00
T6 Public Class 7	Electricity	1.37E-04	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 7	Natural Gas	2.46E-05	0.32	0.00	0.01	0.00	0.00	0.00
T6 Utility Class 5	Diesel	2.56E-05	0.26	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 5	Electricity	3.66E-05	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 5	Natural Gas	5.78E-08	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Diesel	4.84E-06	0.05	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Electricity	6.92E-06	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 6	Natural Gas	1.09E-08	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	6.63E-06	0.07	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Electricity	9.73E-06	0.00	0.00	0.00	0.00	0.00	0.00
T6 Utility Class 7	Natural Gas	1.50E-08	0.00	0.00	0.00	0.00	0.00	0.00
T6TS	Gasoline	5.87E-04	0.26	0.01	0.02	0.00	0.00	0.00
T6TS	Electricity	6.79E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 CAIRP Class 8	Diesel	1.54E-02	199.24	2.62	0.08	0.03	0.06	0.08
T7 CAIRP Class 8	Electricity	4.43E-03	0.00	0.00	0.00	0.00	0.00	0.02
T7 NNOOS Class 8	Diesel	2.34E-02	290.42	4.41	0.12	0.04	0.10	0.12
T7 NOOS Class 8	Diesel	8.51E-03	105.44	1.65	0.05	0.01	0.04	0.04
T7 Other Port Class 8	Diesel	2.53E-04	3.51	0.04	0.00	0.00	0.00	0.00
T7 Other Port Class 8	Electricity	6.40E-05	0.00	0.00	0.00	0.00	0.00	0.00
T7 POAK Class 8	Diesel	6.15E-04	8.52	0.11	0.01	0.00	0.00	0.00
T7 POAK Class 8	Electricity	1.41E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 POLA Class 8	Diesel	9.19E-04	12.92	0.18	0.01	0.00	0.00	0.00
T7 POLA Class 8	Electricity	1.61E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 POLA Class 8	Natural Gas	4.28E-06	0.06	0.00	0.00	0.00	0.00	0.00
T7 Public Class 8	Diesel	4.27E-04	6.98	0.11	0.01	0.00	0.00	0.00
T7 Public Class 8	Electricity	3.30E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 Public Class 8	Natural Gas	5.39E-05	1.03	0.00	0.06	0.00	0.00	0.00
T7 Single Concrete/Transit Mix Class 8	Diesel	1.51E-04	2.22	0.02	0.00	0.00	0.00	0.00
T7 Single Concrete/Transit Mix Class 8	Electricity	2.06E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 Single Concrete/Transit Mix Class 8	Natural Gas	5.51E-06	0.08	0.00	0.00	0.00	0.00	0.00
T7 Single Dump Class 8	Diesel	6.87E-04	10.39	0.11	0.01	0.00	0.00	0.00
T7 Single Dump Class 8	Electricity	5.97E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 Single Dump Class 8	Natural Gas	2.47E-05	0.37	0.00	0.02	0.00	0.00	0.00
T7 Single Other Class 8	Diesel	1.86E-03	27.77	0.26	0.01	0.00	0.00	0.01
T7 Single Other Class 8	Electricity	1.86E-03	0.00	0.00	0.00	0.00	0.00	0.01
T7 Single Other Class 8	Natural Gas	6.73E-05	1.00	0.00	0.04	0.00	0.00	0.00
T7 SWCV Class 8	Diesel	1.36E-04	4.72	0.04	0.00	0.00	0.00	0.00
T7 SWCV Class 8	Electricity	3.10E-04	0.00	0.00	0.00	0.00	0.00	0.00
T7 SWCV Class 8	Natural Gas	3.27E-04	5.70	0.02	0.47	0.00	0.00	0.00
T7 Tractor Class 8	Diesel	1.14E-02	147.89	1.92	0.08	0.02	0.04	0.06
T7 Tractor Class 8	Electricity	2.26E-03	0.00	0.00	0.00	0.00	0.00	0.01
T7 Tractor Class 8	Natural Gas	1.79E-04	2.53	0.00	0.10	0.00	0.00	0.00
T7 Utility Class 8	Diesel	2.76E-05	0.43	0.00	0.00	0.00	0.00	0.00
T7 Utility Class 8	Electricity	2.15E-05	0.00	0.00	0.00	0.00	0.00	0.00
T7IS	Gasoline	2.02E-06	0.01	0.00	0.01	0.00	0.00	0.00
T7IS	Electricity	2.17E-06	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Diesel	3.47E-07	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Electricity	6.32E-04	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Natural Gas	1.40E-06	0.01	0.00	0.00	0.00	0.00	0.00
	Total	100.00%	1175.48	15.36	72.04	0.43	0.34	1.44

Year 2045 Proposed GP: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**116,039,229**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
All Other Buses	Diesel	0.01%	18.00	0.00	0.00	18.75
All Other Buses	Natural Gas	0.00%	1.14	0.00	0.00	1.24
LDA	Gasoline	41.53%	11,043.25	0.05	0.16	11,087.09
LDA	Diesel	0.02%	5.18	0.00	0.00	5.40
LDA	Electricity	5.39%	0.00	0.00	0.00	0.00
LDA	Plug-in Hybrid	1.96%	283.74	0.00	0.00	284.07
LDT1	Gasoline	2.46%	757.70	0.00	0.01	760.40
LDT1	Diesel	0.00%	0.01	0.00	0.00	0.01
LDT1	Electricity	0.07%	0.00	0.00	0.00	0.00
LDT1	Plug-in Hybrid	0.06%	8.45	0.00	0.00	8.46
LDT2	Gasoline	21.73%	6,924.41	0.04	0.09	6,949.08
LDT2	Diesel	0.08%	24.28	0.00	0.00	25.29
LDT2	Electricity	0.59%	0.00	0.00	0.00	0.00
LDT2	Plug-in Hybrid	0.59%	85.78	0.00	0.00	85.88
LHD1	Gasoline	0.75%	651.74	0.00	0.00	652.18
LHD1	Diesel	0.47%	327.58	0.00	0.05	341.32
LHD1	Electricity	0.93%	0.00	0.00	0.00	0.00
LHD2	Gasoline	0.08%	76.08	0.00	0.00	76.14
LHD2	Diesel	0.22%	181.44	0.00	0.03	189.05
LHD2	Electricity	0.21%	0.00	0.00	0.00	0.00
MCY	Gasoline	0.23%	51.03	0.04	0.01	54.71
MDV	Gasoline	12.04%	4,659.89	0.02	0.05	4,674.23
MDV	Diesel	0.13%	50.73	0.00	0.01	52.85
MDV	Electricity	0.54%	0.00	0.00	0.00	0.00
MDV	Plug-in Hybrid	0.36%	51.77	0.00	0.00	51.83
MH	Gasoline	0.03%	60.33	0.00	0.00	60.48
MH	Diesel	0.02%	19.48	0.00	0.00	20.30
Motor Coach	Diesel	0.01%	18.48	0.00	0.00	19.26
OBUS	Gasoline	0.01%	19.12	0.00	0.00	19.18
OBUS	Electricity	0.01%	0.00	0.00	0.00	0.00
PTO	Diesel	0.06%	112.22	0.00	0.02	116.91
PTO	Electricity	0.05%	0.00	0.00	0.00	0.00
SBUS	Gasoline	0.02%	17.85	0.00	0.00	17.95
SBUS	Diesel	0.02%	24.41	0.00	0.00	25.42
SBUS	Electricity	0.03%	0.00	0.00	0.00	0.00
SBUS	Natural Gas	0.01%	8.21	0.02	0.00	9.16
T6 CAIRP Class 4	Diesel	0.00%	2.00	0.00	0.00	2.08
T6 CAIRP Class 4	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	0.00%	2.75	0.00	0.00	2.86
T6 CAIRP Class 5	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	0.01%	7.14	0.00	0.00	7.44
T6 CAIRP Class 6	Electricity	0.01%	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	0.07%	72.60	0.00	0.01	75.63
T6 CAIRP Class 7	Electricity	0.02%	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Diesel	0.02%	28.90	0.00	0.00	30.10
T6 Instate Delivery Class 4	Electricity	0.03%	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	0.02%	18.84	0.00	0.00	19.63
T6 Instate Delivery Class 5	Electricity	0.02%	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	0.07%	81.69	0.00	0.01	85.10
T6 Instate Delivery Class 6	Electricity	0.07%	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Diesel	0.03%	31.93	0.00	0.01	33.27
T6 Instate Delivery Class 7	Electricity	0.02%	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Natural Gas	0.00%	1.11	0.00	0.00	1.20
T6 Instate Other Class 4	Diesel	0.05%	60.41	0.00	0.01	62.94
T6 Instate Other Class 4	Electricity	0.06%	0.00	0.00	0.00	0.00

Year 2045 Proposed GP: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**116,039,229**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T6 Instate Other Class 5	Diesel	0.14%	170.69	0.00	0.03	177.81
T6 Instate Other Class 5	Electricity	0.16%	0.00	0.00	0.00	0.00
T6 Instate Other Class 6	Diesel	0.11%	126.80	0.00	0.02	132.09
T6 Instate Other Class 6	Electricity	0.12%	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Diesel	0.09%	104.95	0.00	0.02	109.33
T6 Instate Other Class 7	Electricity	0.07%	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Natural Gas	0.00%	2.28	0.00	0.00	2.45
T6 Instate Tractor Class 6	Diesel	0.00%	1.64	0.00	0.00	1.71
T6 Instate Tractor Class 6	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	0.21%	227.00	0.00	0.04	236.48
T6 Instate Tractor Class 7	Electricity	0.05%	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Natural Gas	0.01%	5.57	0.00	0.00	6.00
T6 OOS Class 4	Diesel	0.00%	2.59	0.00	0.00	2.70
T6 OOS Class 5	Diesel	0.00%	3.55	0.00	0.00	3.70
T6 OOS Class 6	Diesel	0.01%	9.26	0.00	0.00	9.64
T6 OOS Class 7	Diesel	0.06%	60.66	0.00	0.01	63.20
T6 Public Class 4	Diesel	0.00%	3.01	0.00	0.00	3.13
T6 Public Class 4	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	0.00%	0.36	0.00	0.00	0.39
T6 Public Class 5	Diesel	0.01%	8.43	0.00	0.00	8.78
T6 Public Class 5	Electricity	0.01%	0.00	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	0.00%	1.08	0.00	0.00	1.17
T6 Public Class 6	Diesel	0.01%	12.93	0.00	0.00	13.47
T6 Public Class 6	Electricity	0.01%	0.00	0.00	0.00	0.00
T6 Public Class 6	Natural Gas	0.00%	1.56	0.00	0.00	1.68
T6 Public Class 7	Diesel	0.02%	21.71	0.00	0.00	22.62
T6 Public Class 7	Electricity	0.01%	0.00	0.00	0.00	0.00
T6 Public Class 7	Natural Gas	0.00%	2.80	0.00	0.00	3.02
T6 Utility Class 5	Diesel	0.00%	3.02	0.00	0.00	3.15
T6 Utility Class 5	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 Utility Class 5	Natural Gas	0.00%	0.01	0.00	0.00	0.01
T6 Utility Class 6	Diesel	0.00%	0.57	0.00	0.00	0.59
T6 Utility Class 6	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 Utility Class 6	Natural Gas	0.00%	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	0.00%	0.78	0.00	0.00	0.82
T6 Utility Class 7	Electricity	0.00%	0.00	0.00	0.00	0.00
T6 Utility Class 7	Natural Gas	0.00%	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.06%	105.10	0.00	0.00	105.24
T6TS	Electricity	0.07%	0.00	0.00	0.00	0.00
T7 CAIRP Class 8	Diesel	1.54%	2,281.57	0.00	0.36	2,376.86
T7 CAIRP Class 8	Electricity	0.44%	0.00	0.00	0.00	0.00
T7 NNOOS Class 8	Diesel	2.34%	3,325.72	0.00	0.52	3,464.61
T7 NOOS Class 8	Diesel	0.85%	1,207.49	0.00	0.19	1,257.91
T7 Other Port Class 8	Diesel	0.03%	40.25	0.00	0.01	41.93
T7 Other Port Class 8	Electricity	0.01%	0.00	0.00	0.00	0.00
T7 POAK Class 8	Diesel	0.06%	97.61	0.00	0.02	101.69
T7 POAK Class 8	Electricity	0.01%	0.00	0.00	0.00	0.00
T7 POLA Class 8	Diesel	0.09%	147.97	0.00	0.02	154.15
T7 POLA Class 8	Electricity	0.02%	0.00	0.00	0.00	0.00
T7 POLA Class 8	Natural Gas	0.00%	0.57	0.00	0.00	0.62
T7 Public Class 8	Diesel	0.04%	79.97	0.00	0.01	83.31
T7 Public Class 8	Electricity	0.03%	0.00	0.00	0.00	0.00
T7 Public Class 8	Natural Gas	0.01%	9.13	0.01	0.00	9.92
T7 Single Concrete/Transit Mix	Diesel	0.02%	25.45	0.00	0.00	26.51
T7 Single Concrete/Transit Mix	Electricity	0.02%	0.00	0.00	0.00	0.00

Year 2045 Proposed GP: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**116,039,229**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T7 Single Concrete/Transit Mix	Natural Gas	0.00%	0.72	0.00	0.00	0.78
T7 Single Dump Class 8	Diesel	0.07%	119.02	0.00	0.02	123.99
T7 Single Dump Class 8	Electricity	0.06%	0.00	0.00	0.00	0.00
T7 Single Dump Class 8	Natural Gas	0.00%	3.31	0.00	0.00	3.57
T7 Single Other Class 8	Diesel	0.19%	317.97	0.00	0.05	331.25
T7 Single Other Class 8	Electricity	0.19%	0.00	0.00	0.00	0.00
T7 Single Other Class 8	Natural Gas	0.01%	8.86	0.01	0.00	9.57
T7 SWCV Class 8	Diesel	0.01%	54.01	0.00	0.01	56.26
T7 SWCV Class 8	Electricity	0.03%	0.00	0.00	0.00	0.00
T7 SWCV Class 8	Natural Gas	0.03%	50.46	0.02	0.01	53.73
T7 Tractor Class 8	Diesel	1.14%	1,693.57	0.00	0.27	1,764.30
T7 Tractor Class 8	Electricity	0.23%	0.00	0.00	0.00	0.00
T7 Tractor Class 8	Natural Gas	0.02%	22.43	0.02	0.00	24.23
T7 Utility Class 8	Diesel	0.00%	4.95	0.00	0.00	5.16
T7 Utility Class 8	Electricity	0.00%	0.00	0.00	0.00	0.00
T7IS	Gasoline	0.00%	0.42	0.00	0.00	0.43
T7IS	Electricity	0.00%	0.00	0.00	0.00	0.00
UBUS	Diesel	0.00%	0.03	0.00	0.00	0.03
UBUS	Electricity	0.06%	0.00	0.00	0.00	0.00
UBUS	Natural Gas	0.00%	0.13	0.00	0.00	0.14
	total	100.00%	36,157.65	0.26	2.12	36,727.01

Year 2045 Proposed GP: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Emission Rates. San Joaquin (SJV) Sub-Area

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**116,039,229**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
			CO_2	**CH_4**	**N_2O**	
			AR5 GWP	AR5 GWP	AR5 GWP	
SOI Annual VMT	**22,317,826**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
All Other Buses	Diesel	1.49E-04	3.46	0.00	0.00	3.61
All Other Buses	Natural Gas	1.08E-05	0.22	0.00	0.00	0.24
LDA	Gasoline	4.15E-01	2,123.95	0.01	0.03	2,132.38
LDA	Diesel	2.44E-04	1.00	0.00	0.00	1.04
LDA	Electricity	5.39E-02	0.00	0.00	0.00	0.00
LDA	Plug-in Hybrid	1.96E-02	54.57	0.00	0.00	54.63
LDT1	Gasoline	2.46E-02	145.73	0.00	0.00	146.25
LDT1	Diesel	2.89E-07	0.00	0.00	0.00	0.00
LDT1	Electricity	7.36E-04	0.00	0.00	0.00	0.00
LDT1	Plug-in Hybrid	5.86E-04	1.63	0.00	0.00	1.63
LDT2	Gasoline	2.17E-01	1,331.77	0.01	0.02	1,336.52
LDT2	Diesel	8.28E-04	4.67	0.00	0.00	4.86
LDT2	Electricity	5.85E-03	0.00	0.00	0.00	0.00
LDT2	Plug-in Hybrid	5.94E-03	16.50	0.00	0.00	16.52
LHD1	Gasoline	7.49E-03	125.35	0.00	0.00	125.43
LHD1	Diesel	4.67E-03	63.00	0.00	0.01	65.65
LHD1	Electricity	9.28E-03	0.00	0.00	0.00	0.00
LHD2	Gasoline	7.76E-04	14.63	0.00	0.00	14.64
LHD2	Diesel	2.21E-03	34.90	0.00	0.01	36.36
LHD2	Electricity	2.11E-03	0.00	0.00	0.00	0.00
MCY	Gasoline	2.33E-03	9.81	0.01	0.00	10.52
MDV	Gasoline	1.20E-01	896.24	0.00	0.01	898.99
MDV	Diesel	1.32E-03	9.76	0.00	0.00	10.16
MDV	Electricity	5.37E-03	0.00	0.00	0.00	0.00
MDV	Plug-in Hybrid	3.58E-03	9.96	0.00	0.00	9.97
MH	Gasoline	2.67E-04	11.60	0.00	0.00	11.63
MH	Diesel	1.54E-04	3.75	0.00	0.00	3.90
Motor Coach	Diesel	1.04E-04	3.55	0.00	0.00	3.70
OBUS	Gasoline	1.07E-04	3.68	0.00	0.00	3.69
OBUS	Electricity	1.22E-04	0.00	0.00	0.00	0.00
PTO	Diesel	5.55E-04	21.58	0.00	0.00	22.48
PTO	Electricity	5.29E-04	0.00	0.00	0.00	0.00
SBUS	Gasoline	2.04E-04	3.43	0.00	0.00	3.45
SBUS	Diesel	2.03E-04	4.69	0.00	0.00	4.89
SBUS	Electricity	2.79E-04	0.00	0.00	0.00	0.00
SBUS	Natural Gas	6.54E-05	1.58	0.00	0.00	1.76
T6 CAIRP Class 4	Diesel	1.70E-05	0.38	0.00	0.00	0.40
T6 CAIRP Class 4	Electricity	2.39E-05	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	2.33E-05	0.53	0.00	0.00	0.55
T6 CAIRP Class 5	Electricity	3.27E-05	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	6.07E-05	1.37	0.00	0.00	1.43
T6 CAIRP Class 6	Electricity	8.59E-05	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	6.98E-04	13.96	0.00	0.00	14.55
T6 CAIRP Class 7	Electricity	2.21E-04	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Diesel	2.38E-04	5.56	0.00	0.00	5.79
T6 Instate Delivery Class 4	Electricity	2.56E-04	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	1.55E-04	3.62	0.00	0.00	3.78
T6 Instate Delivery Class 5	Electricity	1.66E-04	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	6.72E-04	15.71	0.00	0.00	16.37

Year 2045 Proposed GP: Greenhouse Gas Emissions

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Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**116,039,229**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T6 Instate Delivery Class 6	Electricity	7.22E-04	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Diesel	2.55E-04	6.14	0.00	0.00	6.40
T6 Instate Delivery Class 7	Electricity	1.54E-04	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 7	Natural Gas	9.01E-06	0.21	0.00	0.00	0.23
T6 Instate Other Class 4	Diesel	5.13E-04	11.62	0.00	0.00	12.10
T6 Instate Other Class 4	Electricity	5.85E-04	0.00	0.00	0.00	0.00
T6 Instate Other Class 5	Diesel	1.45E-03	32.83	0.00	0.01	34.20
T6 Instate Other Class 5	Electricity	1.65E-03	0.00	0.00	0.00	0.00
T6 Instate Other Class 6	Diesel	1.08E-03	24.39	0.00	0.00	25.41
T6 Instate Other Class 6	Electricity	1.22E-03	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Diesel	8.84E-04	20.19	0.00	0.00	21.03
T6 Instate Other Class 7	Electricity	6.63E-04	0.00	0.00	0.00	0.00
T6 Instate Other Class 7	Natural Gas	2.18E-05	0.44	0.00	0.00	0.47
T6 Instate Tractor Class 6	Diesel	1.39E-05	0.32	0.00	0.00	0.33
T6 Instate Tractor Class 6	Electricity	1.65E-05	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	2.09E-03	43.66	0.00	0.01	45.48
T6 Instate Tractor Class 7	Electricity	4.88E-04	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Natural Gas	5.43E-05	1.07	0.00	0.00	1.15
T6 OOS Class 4	Diesel	2.34E-05	0.50	0.00	0.00	0.52
T6 OOS Class 5	Diesel	3.21E-05	0.68	0.00	0.00	0.71
T6 OOS Class 6	Diesel	8.39E-05	1.78	0.00	0.00	1.85
T6 OOS Class 7	Diesel	6.10E-04	11.67	0.00	0.00	12.15
T6 Public Class 4	Diesel	2.38E-05	0.58	0.00	0.00	0.60
T6 Public Class 4	Electricity	2.34E-05	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	3.16E-06	0.07	0.00	0.00	0.07
T6 Public Class 5	Diesel	6.64E-05	1.62	0.00	0.00	1.69
T6 Public Class 5	Electricity	6.52E-05	0.00	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	9.51E-06	0.21	0.00	0.00	0.23
T6 Public Class 6	Diesel	1.02E-04	2.49	0.00	0.00	2.59
T6 Public Class 6	Electricity	9.93E-05	0.00	0.00	0.00	0.00
T6 Public Class 6	Natural Gas	1.37E-05	0.30	0.00	0.00	0.32
T6 Public Class 7	Diesel	1.74E-04	4.18	0.00	0.00	4.35
T6 Public Class 7	Electricity	1.37E-04	0.00	0.00	0.00	0.00
T6 Public Class 7	Natural Gas	2.46E-05	0.54	0.00	0.00	0.58
T6 Utility Class 5	Diesel	2.56E-05	0.58	0.00	0.00	0.61
T6 Utility Class 5	Electricity	3.66E-05	0.00	0.00	0.00	0.00
T6 Utility Class 5	Natural Gas	5.78E-08	0.00	0.00	0.00	0.00
T6 Utility Class 6	Diesel	4.84E-06	0.11	0.00	0.00	0.11
T6 Utility Class 6	Electricity	6.92E-06	0.00	0.00	0.00	0.00
T6 Utility Class 6	Natural Gas	1.09E-08	0.00	0.00	0.00	0.00
T6 Utility Class 7	Diesel	6.63E-06	0.15	0.00	0.00	0.16
T6 Utility Class 7	Electricity	9.73E-06	0.00	0.00	0.00	0.00
T6 Utility Class 7	Natural Gas	1.50E-08	0.00	0.00	0.00	0.00
T6TS	Gasoline	5.87E-04	20.21	0.00	0.00	20.24
T6TS	Electricity	6.79E-04	0.00	0.00	0.00	0.00
T7 CAIRP Class 8	Diesel	1.54E-02	438.82	0.00	0.07	457.14
T7 CAIRP Class 8	Electricity	4.43E-03	0.00	0.00	0.00	0.00
T7 NNOOS Class 8	Diesel	2.34E-02	639.64	0.00	0.10	666.35
T7 NOOS Class 8	Diesel	8.51E-03	232.24	0.00	0.04	241.93
T7 Other Port Class 8	Diesel	2.53E-04	7.74	0.00	0.00	8.06
T7 Other Port Class 8	Electricity	6.40E-05	0.00	0.00	0.00	0.00
T7 POAK Class 8	Diesel	6.15E-04	18.77	0.00	0.00	19.56
T7 POAK Class 8	Electricity	1.41E-04	0.00	0.00	0.00	0.00
T7 POLA Class 8	Diesel	9.19E-04	28.46	0.00	0.00	29.65
T7 POLA Class 8	Electricity	1.61E-04	0.00	0.00	0.00	0.00

Year 2045 Proposed GP: Greenhouse Gas Emissions

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Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan

			CO_2	CH_4	N_2O	
			AR5 GWP	AR5 GWP	AR5 GWP	
City Annual VMT	**116,039,229**		1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T7 POLA Class 8	Natural Gas	4.28E-06	0.11	0.00	0.00	0.12
T7 Public Class 8	Diesel	4.27E-04	15.38	0.00	0.00	16.02
T7 Public Class 8	Electricity	3.30E-04	0.00	0.00	0.00	0.00
T7 Public Class 8	Natural Gas	5.39E-05	1.76	0.00	0.00	1.91
T7 Single Concrete/Transit Mix	Diesel	1.51E-04	4.90	0.00	0.00	5.10
T7 Single Concrete/Transit Mix	Electricity	2.06E-04	0.00	0.00	0.00	0.00
T7 Single Concrete/Transit Mix	Natural Gas	5.51E-06	0.14	0.00	0.00	0.15
T7 Single Dump Class 8	Diesel	6.87E-04	22.89	0.00	0.00	23.85
T7 Single Dump Class 8	Electricity	5.97E-04	0.00	0.00	0.00	0.00
T7 Single Dump Class 8	Natural Gas	2.47E-05	0.64	0.00	0.00	0.69
T7 Single Other Class 8	Diesel	1.86E-03	61.16	0.00	0.01	63.71
T7 Single Other Class 8	Electricity	1.86E-03	0.00	0.00	0.00	0.00
T7 Single Other Class 8	Natural Gas	6.73E-05	1.70	0.00	0.00	1.84
T7 SWCV Class 8	Diesel	1.36E-04	10.39	0.00	0.00	10.82
T7 SWCV Class 8	Electricity	3.10E-04	0.00	0.00	0.00	0.00
T7 SWCV Class 8	Natural Gas	3.27E-04	9.70	0.00	0.00	10.33
T7 Tractor Class 8	Diesel	1.14E-02	325.72	0.00	0.05	339.33
T7 Tractor Class 8	Electricity	2.26E-03	0.00	0.00	0.00	0.00
T7 Tractor Class 8	Natural Gas	1.79E-04	4.31	0.00	0.00	4.66
T7 Utility Class 8	Diesel	2.76E-05	0.95	0.00	0.00	0.99
T7 Utility Class 8	Electricity	2.15E-05	0.00	0.00	0.00	0.00
T7IS	Gasoline	2.02E-06	0.08	0.00	0.00	0.08
T7IS	Electricity	2.17E-06	0.00	0.00	0.00	0.00
UBUS	Diesel	3.47E-07	0.01	0.00	0.00	0.01
UBUS	Electricity	6.32E-04	0.00	0.00	0.00	0.00
UBUS	Natural Gas	1.40E-06	0.02	0.00	0.00	0.03
	Total	100.00%	6,954.20	0.05	0.41	7,063.71

Source: EMFAC2021 (v1.0.2) Emission Rates

Region Type: Sub-Area

Region: San Joaquin (SJV)

Calendar Year: 2045

Season: Annual

Vehicle Classification: EMFAC202x Categories

Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

g/mile 2.205E-03

Vehicle Category	Fuel	VMT Total	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM10_PMTW	PM10_PMBW	PM10_TOTAL	PM2.5_RUNEX	PM2.5_PMTW	PM2.5_PMBW	PM2.5_TOTAL	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX	% of VMT
All Other Buses	Diesel	4021.59	5.17E-02	1.22E+00	1.90E-01	9.85E-03	1.49E-02	1.20E-02	4.61E-02	7.30E-02	1.43E-02	3.00E-03	1.61E-02	3.34E-02	1.04E+03	2.40E-03	1.64E-01	1.49E-04
All Other Buses	Natural Gas	292.05	1.22E-02	6.74E-02	3.44E+00	0.00E+00	1.79E-03	1.20E-02	4.61E-02	5.99E-02	1.65E-03	3.00E-03	1.61E-02	2.08E-02	9.11E+02	8.57E-01	1.86E-01	1.08E-05
LDA	Gasoline	#########	3.24E-03	2.04E-02	5.46E-01	2.27E-03	5.61E-04	8.00E-03	9.28E-03	1.78E-02	5.16E-04	2.00E-03	3.25E-03	5.76E-03	2.29E+02	1.12E-03	3.31E-03	4.15E-01
LDA	Diesel	6571.90	6.39E-03	1.77E-02	1.96E-01	1.74E-03	1.21E-03	8.00E-03	9.30E-03	1.85E-02	1.16E-03	2.00E-03	3.25E-03	6.41E-03	1.83E+02	2.97E-04	2.89E-02	2.44E-04
LDA	Electricity	1454794.48	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	1.24E-02	0.00E+00	2.00E-03	1.54E-03	3.54E-03	0.00E+00	0.00E+00	0.00E+00	5.39E-02
LDA	Plug-in Hybric	529045.10	1.40E-03	2.95E-03	2.10E-01	1.23E-03	2.31E-04	8.00E-03	4.28E-03	1.25E-02	2.12E-04	2.00E-03	1.50E-03	3.71E-03	1.25E+02	4.26E-04	4.96E-04	1.96E-02
LDT1	Gasoline	664697.13	3.59E-03	2.23E-02	5.80E-01	2.62E-03	6.14E-04	8.00E-03	1.09E-02	1.95E-02	5.65E-04	2.00E-03	3.82E-03	6.39E-03	2.65E+02	1.20E-03	3.44E-03	2.46E-02
LDT1	Diesel	7.81	1.79E-02	3.19E-02	1.91E-01	3.23E-03	4.54E-03	8.00E-03	1.08E-02	2.34E-02	4.34E-03	2.00E-03	3.79E-03	1.01E-02	3.41E+02	8.33E-04	5.38E-02	2.89E-07
LDT1	Electricity	19864.37	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	1.24E-02	0.00E+00	2.00E-03	1.54E-03	3.54E-03	0.00E+00	0.00E+00	0.00E+00	7.36E-04
LDT1	Plug-in Hybric	15816.10	1.39E-03	2.94E-03	2.09E-01	1.23E-03	2.21E-04	8.00E-03	4.28E-03	1.25E-02	2.03E-04	2.00E-03	1.50E-03	3.70E-03	1.24E+02	4.24E-04	4.93E-04	5.86E-04
LDT2	Gasoline	5862178.06	4.49E-03	2.34E-02	6.38E-01	2.72E-03	5.79E-04	8.00E-03	1.08E-02	1.94E-02	5.32E-04	2.00E-03	3.79E-03	6.32E-03	2.75E+02	1.48E-03	3.54E-03	2.17E-01
LDT2	Diesel	22330.20	1.79E-02	3.20E-02	1.90E-01	2.40E-03	4.52E-03	8.00E-03	1.08E-02	2.33E-02	4.32E-03	2.00E-03	3.79E-03	1.01E-02	2.53E+02	8.32E-04	3.98E-02	8.28E-04
LDT2	Electricity	157950.29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	1.24E-02	0.00E+00	2.00E-03	1.54E-03	3.54E-03	0.00E+00	0.00E+00	0.00E+00	5.85E-03
LDT2	Plug-in Hybric	160201.19	1.40E-03	2.94E-03	2.10E-01	1.23E-03	2.26E-04	8.00E-03	4.28E-03	1.25E-02	2.08E-04	2.00E-03	1.50E-03	3.71E-03	1.25E+02	4.24E-04	4.92E-04	5.94E-03
LHD1	Gasoline	201979.58	4.16E-03	2.12E-02	5.96E-01	7.42E-03	1.27E-03	8.00E-03	7.80E-02	8.73E-02	1.17E-03	2.00E-03	2.73E-02	3.05E-02	7.50E+02	1.23E-03	1.78E-03	7.49E-03
LHD1	Diesel	126027.74	9.64E-02	3.75E-01	2.52E-01	5.73E-03	2.12E-02	1.20E-02	7.80E-02	1.11E-01	2.03E-02	3.00E-03	2.73E-02	5.06E-02	6.04E+02	4.48E-03	9.52E-02	4.67E-03
LHD1	Electricity	250356.91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	4.70E-02	0.00E+00	2.00E-03	1.37E-02	1.57E-02	0.00E+00	0.00E+00	0.00E+00	9.28E-03
LHD2	Gasoline	20927.38	3.71E-03	2.30E-02	6.03E-01	8.36E-03	1.25E-03	8.00E-03	9.10E-02	1.00E-01	1.15E-03	2.00E-03	3.19E-02	3.50E-02	8.45E+02	1.12E-03	2.22E-03	7.76E-04
LHD2	Diesel	59636.33	1.20E-01	5.44E-01	3.20E-01	6.70E-03	2.67E-02	1.20E-02	9.10E-02	1.30E-01	2.55E-02	3.00E-03	3.19E-02	6.04E-02	7.07E+02	5.56E-03	1.11E-01	2.21E-03
LHD2	Electricity	56942.21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	5.35E-02	0.00E+00	2.00E-03	1.59E-02	1.79E-02	0.00E+00	0.00E+00	0.00E+00	2.11E-03
MCY	Gasoline	62911.86	8.77E-01	4.81E-01	1.07E+01	1.86E-03	2.38E-03	4.00E-03	1.20E-02	1.84E-02	2.22E-03	1.00E-03	4.20E-03	7.42E-03	1.89E+02	1.45E-01	3.60E-02	2.33E-03
MDV	Gasoline	3248084.09	5.02E-03	2.68E-02	6.70E-01	3.30E-03	5.95E-04	8.00E-03	1.10E-02	1.96E-02	5.47E-04	2.00E-03	3.85E-03	6.40E-03	3.34E+02	1.59E-03	3.71E-03	1.20E-01
MDV	Diesel	35673.83	6.76E-03	1.37E-02	2.11E-01	3.13E-03	1.20E-03	8.00E-03	1.10E-02	2.02E-02	1.14E-03	2.00E-03	3.87E-03	7.01E-03	3.31E+02	3.14E-04	5.21E-02	1.32E-03
MDV	Electricity	144922.55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	1.24E-02	0.00E+00	2.00E-03	1.54E-03	3.54E-03	0.00E+00	0.00E+00	0.00E+00	5.37E-03
MDV	Plug-in Hybric	96619.26	1.40E-03	2.94E-03	2.10E-01	1.23E-03	2.30E-04	8.00E-03	4.28E-03	1.25E-02	2.11E-04	2.00E-03	1.50E-03	3.71E-03	1.25E+02	4.21E-04	4.86E-04	3.58E-03
MH	Gasoline	7203.47	1.16E-02	1.96E-01	1.60E-01	1.93E-02	1.47E-03	1.20E-02	4.50E-02	5.85E-02	1.35E-03	3.00E-03	1.58E-02	2.01E-02	1.95E+03	4.06E-03	1.81E-02	2.67E-04
MH	Diesel	4159.63	8.95E-02	2.68E+00	2.67E-01	1.03E-02	3.34E-02	1.60E-02	4.48E-02	9.42E-02	3.20E-02	4.00E-03	1.57E-02	5.17E-02	1.09E+03	4.16E-03	1.72E-01	1.54E-04
Motor Coach	Diesel	2806.52	1.05E-02	9.36E-01	3.59E-02	1.45E-02	2.37E-02	1.20E-02	8.15E-02	1.17E-01	2.26E-02	3.00E-03	2.85E-02	5.42E-02	1.53E+03	4.89E-04	2.41E-01	1.04E-04
OBUS	Gasoline	2883.86	2.66E-02	2.92E-01	5.30E-01	1.52E-02	1.29E-03	1.20E-02	4.49E-02	5.82E-02	1.18E-03	3.00E-03	1.57E-02	1.99E-02	1.54E+03	5.85E-03	1.71E-02	1.07E-04
OBUS	Electricity	3287.73	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.86E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	1.22E-04
PTO	Diesel	14987.96	1.43E-02	2.51E+00	1.77E-01	1.65E-02	3.97E-03	0.00E+00	0.00E+00	3.97E-03	3.80E-03	0.00E+00	0.00E+00	3.80E-03	1.74E+03	6.63E-04	2.74E-01	5.55E-04
PTO	Electricity	14262.87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.29E-04
SBUS	Gasoline	5506.60	7.78E-03	1.69E-01	2.05E-01	7.45E-03	1.22E-03	8.00E-03	4.49E-02	5.41E-02	1.12E-03	2.00E-03	1.57E-02	1.88E-02	7.54E+02	1.85E-03	1.50E-02	2.04E-04
SBUS	Diesel	5471.14	8.75E-03	4.25E-01	5.80E-02	9.82E-03	3.68E-03	1.20E-02	4.49E-02	6.06E-02	3.52E-03	3.00E-03	1.57E-02	2.22E-02	1.04E+03	4.06E-04	1.63E-01	2.03E-04
SBUS	Electricity	7518.82	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-02	2.25E-02	3.37E-02	0.00E+00	2.80E-03	7.86E-03	1.07E-02	0.00E+00	0.00E+00	0.00E+00	2.79E-04
SBUS	Natural Gas	1765.76	3.36E-02	1.73E-01	6.53E+00	0.00E+00	3.67E-03	1.20E-02	4.49E-02	6.06E-02	3.38E-03	3.00E-03	1.57E-02	2.21E-02	1.08E+03	2.35E+00	2.20E-01	6.54E-05
T6 CAIRP Class 4	Diesel	458.09	5.33E-03	1.77E-01	2.73E-02	9.61E-03	5.37E-03	1.20E-02	4.23E-02	5.97E-02	5.14E-03	3.00E-03	1.48E-02	2.30E-02	1.02E+03	2.48E-04	1.60E-01	1.70E-05
T6 CAIRP Class 4	Electricity	644.79	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.12E-02	3.32E-02	0.00E+00	3.00E-03	7.40E-03	1.04E-02	0.00E+00	0.00E+00	0.00E+00	2.39E-05
T6 CAIRP Class 5	Diesel	629.55	5.34E-03	1.78E-01	2.74E-02	9.62E-03	5.38E-03	1.20E-02	4.23E-02	5.97E-02	5.15E-03	3.00E-03	1.48E-02	2.30E-02	1.02E+03	2.48E-04	1.60E-01	2.33E-05
T6 CAIRP Class 5	Electricity	883.41	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.12E-02	3.32E-02	0.00E+00	3.00E-03	7.40E-03	1.04E-02	0.00E+00	0.00E+00	0.00E+00	3.27E-05
T6 CAIRP Class 6	Diesel	1636.97	5.32E-03	1.77E-01	2.73E-02	9.61E-03	5.39E-03	1.20E-02	4.23E-02	5.97E-02	5.16E-03	3.00E-03	1.48E-02	2.30E-02	1.01E+03	2.47E-04	1.60E-01	6.07E-05
T6 CAIRP Class 6	Electricity	2316.43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.12E-02	3.32E-02	0.00E+00	3.00E-03	7.40E-03	1.04E-02	0.00E+00	0.00E+00	0.00E+00	8.59E-05
T6 CAIRP Class 7	Diesel	18838.02	5.73E-03	1.94E-01	2.94E-02	8.49E-03	5.71E-03	1.20E-02	4.23E-02	6.00E-02	5.46E-03	3.00E-03	1.48E-02	2.33E-02	8.96E+02	2.66E-04	1.41E-01	6.98E-04
T6 CAIRP Class 7	Electricity	5959.70	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.12E-02	3.32E-02	0.00E+00	3.00E-03	7.40E-03	1.04E-02	0.00E+00	0.00E+00	0.00E+00	2.21E-04
T6 Instate Delivery Cl	Diesel	6414.80	6.06E-03	3.62E-01	5.33E-02	9.92E-03	1.91E-03	1.20E-02	4.76E-02	6.15E-02	1.83E-03	3.00E-03	1.66E-02	2.15E-02	1.05E+03	2.82E-04	1.65E-01	2.38E-04
T6 Instate Delivery Cl	Electricity	6912.25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.38E-02	3.58E-02	0.00E+00	3.00E-03	8.32E-03	1.13E-02	0.00E+00	0.00E+00	0.00E+00	2.56E-04
T6 Instate Delivery Cl	Diesel	4178.25	6.03E-03	3.56E-01	5.29E-02	9.93E-03	1.90E-03	1.20E-02	4.76E-02	6.15E-02	1.82E-03	3.00E-03	1.66E-02	2.15E-02	1.05E+03	2.80E-04	1.65E-01	1.55E-04
T6 Instate Delivery Cl	Electricity	4490.34	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.38E-02	3.58E-02	0.00E+00	3.00E-03	8.32E-03	1.13E-02	0.00E+00	0.00E+00	0.00E+00	1.66E-04
T6 Instate Delivery Cl	Diesel	18126.53	6.08E-03	3.63E-01	5.32E-02	9.92E-03	1.92E-03	1.20E-02	4.76E-02	6.15E-02	1.83E-03	3.00E-03	1.66E-02	2.15E-02	1.05E+03	2.82E-04	1.65E-01	6.72E-04
T6 Instate Delivery Cl	Electricity	19493.41	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.38E-02	3.58E-02	0.00E+00	3.00E-03	8.32E-03	1.13E-02	0.00E+00	0.00E+00	0.00E+00	7.22E-04
T6 Instate Delivery Cl	Diesel	6891.05	7.89E-03	5.75E-01	6.80E-02	1.02E-02	2.42E-03	1.20E-02	4.76E-02	6.20E-02	2.31E-03	3.00E-03	1.66E-02	2.20E-02	1.08E+03	3.67E-04	1.70E-01	2.55E-04
T6 Instate Delivery Cl	Electricity	4166.32	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.38E-02	3.58E-02	0.00E+00	3.00E-03	8.32E-03	1.13E-02	0.00E+00	0.00E+00	0.00E+00	1.54E-04
T6 Instate Delivery Cl	Natural Gas	243.11	1.25E-02	6.01E-02	3.82E+00	0.00E+00	2.02E-03	1.20E-02	4.76E-02	6.16E-02	1.85E-03	3.00E-03	1.66E-02	2.15E-02	1.06E+03	8.73E-01	2.16E-01	9.01E-06
T6 Instate Other Clas	Diesel	13847.89	5.46E-03	2.71E-01	4.22E-02	9.61E-03	3.12E-03	1.20E-02	4.49E-02	6.00E-02	2.98E-03	3.00E-03	1.57E-02	2.17E-02	1.01E+03	2.54E-04	1.60E-01	5.13E-04
T6 Instate Other Clas	Electricity	15771.11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	5.85E-04
T6 Instate Other Clas	Diesel	39106.67	5.49E-03	2.69E-01	4.22E-02	9.61E-03	3.11E-03	1.20E-02	4.49E-02	6.00E-02	2.98E-03	3.00E-03	1.57E-02	2.17E-02	1.01E+03	2.55E-04	1.60E-01	1.45E-03
T6 Instate Other Clas	Electricity	44517.72	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	1.65E-03
T6 Instate Other Clas	Diesel	29068.31	5.48E-03	2.74E-01	4.23E-02	9.60E-03	3.13E-03	1.20E-02	4.49E-02	6.00E-02	2.99E-03	3.00E-03	1.57E-02	2.17E-02	1.01E+03	2.55E-04	1.60E-01	1.08E-03
T6 Instate Other Clas	Electricity	33042.68	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	1.22E-03
T6 Instate Other Clas	Diesel	23847.92	7.36E-03	4.70E-01	5.32E-02	9.69E-03	4.05E-03	1.20E-02	4.49E-02	6.09E-02	3.87E-03	3.00E-03	1.57E-02	2.26E-02	1.02E+03	3.42E-04	1.61E-01	8.84E-04
T6 Instate Other Clas	Electricity	17900.09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	6.63E-04
T6 Instate Other Clas	Natural Gas	588.61	9.96E-03	5.23E-02	2.67E+00	0.00E+00	1.56E-03	1.20E-02	4.49E-02	5.84E-02	1.43E-03	3.00E-03	1.57E-02	2.01E-02	9.00E+02	6.97E-01	1.83E-01	2.18E-05
T6 Instate Tractor Clc	Diesel	376.34	5.39E-03	2.73E-01	4.17E-02	9.61E-03	3.10E-03	1.20E-02	4.49E-02	6.00E-02	2.97E-03	3.00E-03	1.57E-02	2.17E-02	1.01E+03	2.50E-04	1.60E-01	1.39E-05
T6 Instate Tractor Clc	Electricity	445.98	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	1.65E-05
T6 Instate Tractor Clc	Diesel	56330.57	6.63E-03	3.90E-01	4.95E-02	8.87E-03	3.71E-03	1.20E-02	4.49E-02	6.06E-02	3.55E-03	3.00E-03	1.57E-02	2.23E-02	9.37E+02	3.08E-04	1.48E-01	2.09E-03
T6 Instate Tractor Clc	Electricity	13176.00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	4.88E-04
T6 Instate Tractor Clc	Natural Gas	1465.21	9.96E-03	5.23E-02	2.67E+00	0.00E+00	1.56E-03	1.20E-02	4.49E-02	5.84E-02	1.43E-03	3.00E-03	1.57E-02	2.01E-02	8.85E+02	6.97E-01	1.80E-01	5.43E-05
T6 OOS Class 4	Diesel	631.45	5.22E-03	2.21E-01	2.67E-02	9.02E-03	5.55E-03	1.20E-02	4.23E-02	5.99E-02	5.31E-03	3.00E-03	1.48E-02	2.31E-02	9.53E+02	2.42E-04	1.50E-01	2.34E-05

T6 OOS Class 5	Diesel	866.24	5.23E-03	2.23E-01	2.68E-02	9.03E-03	5.57E-03	1.20E-02	4.23E-02	5.99E-02	5.32E-03	3.00E-03	1.48E-02	2.31E-02	9.53E+02	2.43E-04	1.50E-01	3.21E-05
T6 OOS Class 6	Diesel	2263.50	5.19E-03	2.18E-01	2.66E-02	9.00E-03	5.53E-03	1.20E-02	4.23E-02	5.98E-02	5.29E-03	3.00E-03	1.48E-02	2.31E-02	9.51E+02	2.41E-04	1.50E-01	8.39E-05
T6 OOS Class 7	Diesel	16458.49	5.60E-03	2.31E-01	2.87E-02	8.12E-03	5.85E-03	1.20E-02	4.23E-02	6.02E-02	5.60E-03	3.00E-03	1.48E-02	2.34E-02	8.57E+02	2.60E-04	1.35E-01	6.10E-04
T6 Public Class 4	Diesel	640.83	1.41E-02	6.77E-01	6.06E-02	1.03E-02	4.86E-03	1.20E-02	4.62E-02	6.30E-02	4.65E-03	3.00E-03	1.62E-02	2.38E-02	1.09E+03	6.56E-04	1.72E-01	2.38E-05
T6 Public Class 4	Electricity	632.32	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.31E-02	3.51E-02	0.00E+00	3.00E-03	8.08E-03	1.11E-02	0.00E+00	0.00E+00	0.00E+00	2.34E-05
T6 Public Class 4	Natural Gas	85.35	1.26E-02	5.88E-02	3.06E+00	0.00E+00	1.79E-03	1.20E-02	4.62E-02	6.00E-02	1.65E-03	3.00E-03	1.62E-02	2.08E-02	9.78E+02	8.83E-01	1.99E-01	3.16E-06
T6 Public Class 5	Diesel	1790.89	1.34E-02	5.71E-01	6.15E-02	1.04E-02	4.09E-03	1.20E-02	4.62E-02	6.23E-02	3.92E-03	3.00E-03	1.62E-02	2.31E-02	1.09E+03	6.24E-04	1.72E-01	6.64E-05
T6 Public Class 5	Electricity	1758.85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.31E-02	3.51E-02	0.00E+00	3.00E-03	8.08E-03	1.11E-02	0.00E+00	0.00E+00	0.00E+00	6.52E-05
T6 Public Class 5	Natural Gas	256.55	1.25E-02	8.09E-02	3.06E+00	0.00E+00	1.69E-03	1.20E-02	4.62E-02	5.99E-02	1.55E-03	3.00E-03	1.62E-02	2.07E-02	9.83E+02	8.74E-01	2.00E-01	9.51E-06
T6 Public Class 6	Diesel	2760.72	1.12E-02	4.98E-01	5.60E-02	1.03E-02	3.70E-03	1.20E-02	4.62E-02	6.19E-02	3.54E-03	3.00E-03	1.62E-02	2.27E-02	1.09E+03	5.21E-04	1.72E-01	1.02E-04
T6 Public Class 6	Electricity	2680.48	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.31E-02	3.51E-02	0.00E+00	3.00E-03	8.08E-03	1.11E-02	0.00E+00	0.00E+00	0.00E+00	9.93E-05
T6 Public Class 6	Natural Gas	369.77	1.26E-02	6.09E-02	3.06E+00	0.00E+00	1.78E-03	1.20E-02	4.62E-02	6.00E-02	1.64E-03	3.00E-03	1.62E-02	2.08E-02	9.81E+02	8.82E-01	2.00E-01	1.37E-05
T6 Public Class 7	Diesel	4691.57	9.64E-03	4.19E-01	5.07E-02	1.02E-02	3.25E-03	1.20E-02	4.62E-02	6.14E-02	3.11E-03	3.00E-03	1.62E-02	2.23E-02	1.08E+03	4.48E-04	1.70E-01	1.74E-04
T6 Public Class 7	Electricity	3702.92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.31E-02	3.51E-02	0.00E+00	3.00E-03	8.08E-03	1.11E-02	0.00E+00	0.00E+00	0.00E+00	1.37E-04
T6 Public Class 7	Natural Gas	663.21	1.26E-02	6.44E-02	3.06E+00	0.00E+00	1.77E-03	1.20E-02	4.62E-02	5.99E-02	1.62E-03	3.00E-03	1.62E-02	2.08E-02	9.82E+02	8.81E-01	2.00E-01	2.46E-05
T6 Utility Class 5	Diesel	690.41	5.09E-03	1.93E-01	3.55E-02	9.63E-03	2.32E-03	1.20E-02	4.55E-02	5.98E-02	2.22E-03	3.00E-03	1.59E-02	2.11E-02	1.02E+03	2.36E-04	1.60E-01	2.56E-05
T6 Utility Class 5	Electricity	987.59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.27E-02	3.47E-02	0.00E+00	3.00E-03	7.96E-03	1.10E-02	0.00E+00	0.00E+00	0.00E+00	3.66E-05
T6 Utility Class 5	Natural Gas	1.56	1.11E-02	5.44E-02	2.75E+00	0.00E+00	1.64E-03	1.20E-02	4.55E-02	5.91E-02	1.50E-03	3.00E-03	1.59E-02	2.04E-02	9.16E+02	7.79E-01	1.87E-01	5.78E-08
T6 Utility Class 6	Diesel	130.52	5.09E-03	1.88E-01	3.55E-02	9.63E-03	2.30E-03	1.20E-02	4.55E-02	5.98E-02	2.20E-03	3.00E-03	1.59E-02	2.11E-02	1.02E+03	2.36E-04	1.60E-01	4.84E-06
T6 Utility Class 6	Electricity	186.59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.27E-02	3.47E-02	0.00E+00	3.00E-03	7.96E-03	1.10E-02	0.00E+00	0.00E+00	0.00E+00	6.92E-06
T6 Utility Class 6	Natural Gas	0.29	1.11E-02	5.44E-02	2.75E+00	0.00E+00	1.64E-03	1.20E-02	4.55E-02	5.91E-02	1.50E-03	3.00E-03	1.59E-02	2.04E-02	9.16E+02	7.79E-01	1.87E-01	1.09E-08
T6 Utility Class 7	Diesel	178.76	5.04E-03	1.84E-01	3.52E-02	9.64E-03	2.29E-03	1.20E-02	4.55E-02	5.98E-02	2.19E-03	3.00E-03	1.59E-02	2.11E-02	1.02E+03	2.34E-04	1.60E-01	6.63E-06
T6 Utility Class 7	Electricity	262.45	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.27E-02	3.47E-02	0.00E+00	3.00E-03	7.96E-03	1.10E-02	0.00E+00	0.00E+00	0.00E+00	9.73E-06
T6 Utility Class 7	Natural Gas	0.40	1.11E-02	5.44E-02	2.75E+00	0.00E+00	1.64E-03	1.20E-02	4.55E-02	5.91E-02	1.50E-03	3.00E-03	1.59E-02	2.04E-02	9.16E+02	7.79E-01	1.87E-01	1.50E-08
T6TS	Gasoline	15841.21	1.12E-02	6.92E-02	1.85E-01	1.53E-02	1.50E-03	1.20E-02	4.50E-02	5.85E-02	1.37E-03	3.00E-03	1.58E-02	2.01E-02	1.54E+03	3.04E-03	6.98E-03	5.87E-04
T6TS	Electricity	18325.76	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	3.45E-02	0.00E+00	3.00E-03	7.88E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	6.79E-04
T7 CAIRP Class 8	Diesel	414888.40	1.14E-02	1.20E+00	3.86E-02	1.21E-02	2.96E-02	3.60E-02	8.18E-02	1.47E-01	2.84E-02	9.00E-03	2.86E-02	6.60E-02	1.28E+03	5.30E-04	2.01E-01	1.54E-02
T7 CAIRP Class 8	Electricity	119399.25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.09E-02	7.69E-02	0.00E+00	9.00E-03	1.43E-02	2.33E-02	0.00E+00	0.00E+00	0.00E+00	4.43E-03
T7 NNOOS Class 8	Diesel	631692.72	1.11E-02	1.33E+00	3.76E-02	1.16E-02	2.92E-02	3.60E-02	8.18E-02	1.47E-01	2.80E-02	9.00E-03	2.86E-02	6.56E-02	1.22E+03	5.15E-04	1.93E-01	2.34E-02
T7 NOOS Class 8	Diesel	229482.75	1.14E-02	1.37E+00	3.87E-02	1.16E-02	3.10E-02	3.60E-02	8.18E-02	1.49E-01	2.96E-02	9.00E-03	2.86E-02	6.73E-02	1.22E+03	5.32E-04	1.93E-01	8.51E-03
T7 Other Port Class 8	Diesel	6824.35	1.00E-02	1.24E+00	6.35E-02	1.30E-02	1.64E-02	3.60E-02	9.42E-02	1.47E-01	1.57E-02	9.00E-03	3.30E-02	5.77E-02	1.37E+03	4.66E-04	2.16E-01	2.53E-04
T7 Other Port Class 8	Electricity	1725.68	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.71E-02	8.31E-02	0.00E+00	9.00E-03	1.65E-02	2.55E-02	0.00E+00	0.00E+00	0.00E+00	6.40E-05
T7 POAK Class 8	Diesel	16605.34	1.02E-02	1.29E+00	6.48E-02	1.29E-02	1.71E-02	3.60E-02	9.42E-02	1.47E-01	1.64E-02	9.00E-03	3.30E-02	5.83E-02	1.37E+03	4.75E-04	2.15E-01	6.15E-04
T7 POAK Class 8	Electricity	3797.53	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.71E-02	8.31E-02	0.00E+00	9.00E-03	1.65E-02	2.55E-02	0.00E+00	0.00E+00	0.00E+00	1.41E-04
T7 POLA Class 8	Diesel	24801.83	1.08E-02	1.40E+00	7.00E-02	1.31E-02	1.89E-02	3.60E-02	9.33E-02	1.48E-01	1.81E-02	9.00E-03	3.26E-02	5.97E-02	1.39E+03	4.99E-04	2.19E-01	9.19E-04
T7 POLA Class 8	Electricity	4340.37	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.71E-02	8.31E-02	0.00E+00	9.00E-03	1.65E-02	2.55E-02	0.00E+00	0.00E+00	0.00E+00	1.61E-04
T7 POLA Class 8	Natural Gas	115.44	1.68E-02	1.73E-01	4.98E+00	0.00E+00	2.52E-03	3.60E-02	9.37E-02	1.32E-01	2.32E-03	9.00E-03	3.28E-02	4.41E-02	1.15E+03	1.17E+00	2.35E-01	4.28E-06
T7 Public Class 8	Diesel	11530.55	2.77E-02	1.87E+00	1.46E-01	1.53E-02	1.00E-02	3.60E-02	1.07E-01	1.53E-01	9.58E-03	9.00E-03	3.75E-02	5.61E-02	1.61E+03	1.29E-03	2.54E-01	4.27E-04
T7 Public Class 8	Electricity	8904.89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	5.43E-02	9.03E-02	0.00E+00	9.00E-03	1.90E-02	2.80E-02	0.00E+00	0.00E+00	0.00E+00	3.30E-04
T7 Public Class 8	Natural Gas	1454.46	2.44E-02	2.82E-01	8.15E+00	0.00E+00	3.27E-03	3.60E-02	1.06E-01	1.46E-01	3.00E-03	9.00E-03	3.72E-02	4.92E-02	1.46E+03	1.71E+00	2.98E-01	5.39E-05
T7 Single Concrete/T	Diesel	4086.22	8.63E-03	8.08E-01	4.37E-02	1.37E-02	1.37E-02	3.60E-02	8.86E-02	1.38E-01	1.31E-02	9.00E-03	3.10E-02	5.31E-02	1.45E+03	4.01E-04	2.28E-01	1.51E-04
T7 Single Concrete/T	Electricity	5548.38	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.44E-02	8.04E-02	0.00E+00	9.00E-03	1.55E-02	2.45E-02	0.00E+00	0.00E+00	0.00E+00	2.06E-04
T7 Single Concrete/T	Natural Gas	148.63	1.52E-02	1.64E-01	4.04E+00	0.00E+00	2.26E-03	3.60E-02	8.86E-02	1.27E-01	2.07E-03	9.00E-03	3.10E-02	4.21E-02	1.12E+03	1.07E+00	2.29E-01	5.51E-06
T7 Single Dump Class	Diesel	18525.29	1.03E-02	1.10E+00	5.54E-02	1.41E-02	1.75E-02	3.60E-02	8.70E-02	1.40E-01	1.68E-02	9.00E-03	3.04E-02	5.62E-02	1.49E+03	4.79E-04	2.35E-01	6.87E-04
T7 Single Dump Class	Electricity	16118.51	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.44E-02	8.04E-02	0.00E+00	9.00E-03	1.55E-02	2.45E-02	0.00E+00	0.00E+00	0.00E+00	5.97E-04
T7 Single Dump Class	Natural Gas	666.30	1.52E-02	2.02E-01	4.56E+00	0.00E+00	2.17E-03	3.60E-02	8.71E-02	1.25E-01	2.00E-03	9.00E-03	3.05E-02	4.15E-02	1.15E+03	1.07E+00	2.35E-01	2.47E-05
T7 Single Other Class	Diesel	50239.41	9.57E-03	9.89E-01	4.92E-02	1.39E-02	1.63E-02	3.60E-02	8.74E-02	1.40E-01	1.56E-02	9.00E-03	3.06E-02	5.52E-02	1.47E+03	4.45E-04	2.32E-01	1.86E-03
T7 Single Other Class	Electricity	50163.77	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.44E-02	8.04E-02	0.00E+00	9.00E-03	1.55E-02	2.45E-02	0.00E+00	0.00E+00	0.00E+00	1.86E-03
T7 Single Other Class	Natural Gas	1816.50	1.52E-02	1.76E-01	4.20E+00	0.00E+00	2.23E-03	3.60E-02	8.75E-02	1.26E-01	2.05E-03	9.00E-03	3.06E-02	4.17E-02	1.13E+03	1.07E+00	2.31E-01	6.73E-05
T7 SWCV Class 8	Diesel	3677.29	2.68E-02	2.13E+00	6.17E-02	3.23E-02	1.69E-02	3.60E-02	2.10E-01	2.63E-01	1.61E-02	9.00E-03	7.35E-02	9.86E-02	3.42E+03	1.25E-03	5.38E-01	1.36E-04
T7 SWCV Class 8	Electricity	8353.72	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	1.05E-01	1.41E-01	0.00E+00	9.00E-03	3.68E-02	4.58E-02	0.00E+00	0.00E+00	0.00E+00	3.10E-04
T7 SWCV Class 8	Natural Gas	8830.59	1.69E-02	3.57E-01	1.02E+01	0.00E+00	1.53E-03	3.60E-02	2.10E-01	2.48E-01	1.40E-03	9.00E-03	7.35E-02	8.39E-02	1.33E+03	5.09E-01	2.71E-01	3.27E-04
T7 Tractor Class 8	Diesel	308062.12	1.02E-02	1.18E+00	4.81E-02	1.21E-02	2.18E-02	3.60E-02	8.58E-02	1.44E-01	2.09E-02	9.00E-03	3.00E-02	5.99E-02	1.28E+03	4.76E-04	2.01E-01	1.14E-02
T7 Tractor Class 8	Electricity	60974.76	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.33E-02	7.93E-02	0.00E+00	9.00E-03	1.52E-02	2.42E-02	0.00E+00	0.00E+00	0.00E+00	2.26E-03
T7 Tractor Class 8	Natural Gas	4835.65	1.46E-02	1.69E-01	3.77E+00	0.00E+00	2.15E-03	3.60E-02	8.57E-02	1.24E-01	1.97E-03	9.00E-03	3.00E-02	4.10E-02	1.08E+03	1.02E+00	2.20E-01	1.79E-04
T7 Utility Class 8	Diesel	745.10	1.11E-02	1.06E+00	1.01E-01	1.46E-02	7.21E-03	3.60E-02	1.01E-01	1.44E-01	6.89E-03	9.00E-03	3.54E-02	5.13E-02	1.54E+03	5.16E-04	2.43E-01	2.76E-05
T7 Utility Class 8	Electricity	581.11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	5.19E-02	8.79E-02	0.00E+00	9.00E-03	1.82E-02	2.72E-02	0.00E+00	0.00E+00	0.00E+00	2.15E-05
T7IS	Gasoline	54.58	4.41E-01	2.18E+00	3.01E+01	1.79E-02	1.56E-03	2.00E-02	9.64E-02	1.18E-01	1.43E-03	5.00E-03	3.37E-02	4.02E-02	1.81E+03	9.53E-02	1.01E-01	2.02E-06
T7IS	Electricity	58.61	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-02	4.85E-02	6.85E-02	0.00E+00	5.00E-03	1.70E-02	2.20E-02	0.00E+00	0.00E+00	0.00E+00	2.17E-06
UBUS	Diesel	9.37	9.48E-02	1.88E-01	1.83E-01	6.27E-03	1.38E-02	1.20E-02	9.10E-02	1.17E-01	1.32E-02	3.00E-03	3.19E-02	4.81E-02	6.61E+02	4.40E-03	1.04E-01	3.47E-07
UBUS	Electricity	17048.71	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.29E-02	5.50E-02	7.79E-02	0.00E+00	5.73E-03	1.93E-02	2.50E-02	0.00E+00	0.00E+00	0.00E+00	6.32E-04
UBUS	Natural Gas	37.74	9.48E-02	1.88E-01	1.83E-01	0.00E+00	1.38E-02	1.20E-02	9.10E-02	1.17E-01	1.32E-02	3.00E-03	3.19E-02	4.81E-02	7.98E+02	4.40E-03	1.63E-01	1.40E-06
	total	**26,981,744**															total	**100%**

Source: EMFAC2021 (v1.
Region Type: Sub-Area
Region: San Joaquin (SJV)
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x (
Units: miles/day for CVMT and EVM

		lbs/Mile														
Vehicle Category	Fuel	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2(Pavley+ACC)_RUNEX	CH4_RUNEX	N2O_RUNEX
All Other Buses	Diesel	1.64E-01	2.687E-03	4.188E-04	2.172E-05	3.285E-05	2.646E-05	1.017E-04	1.610E-04	3.142E-05	6.614E-06	3.560E-05	7.364E-05	2.294E+00	5.291E-06	3.614E-04
All Other Buses	Natural Gas	1.86E-01	1.486E-04	7.576E-03	0.000E+00	3.952E-06	2.646E-05	1.017E-04	1.321E-04	3.634E-06	6.614E-06	3.560E-05	4.585E-05	2.008E+00	1.890E-03	4.093E-04
LDA	Gasoline	3.31E-03	4.499E-05	1.204E-03	4.994E-06	1.238E-06	1.764E-05	2.046E-05	3.933E-05	1.138E-06	4.409E-06	7.160E-06	1.271E-05	5.052E-01	2.462E-06	7.308E-06
LDA	Diesel	2.89E-02	3.903E-05	4.318E-04	3.828E-06	2.668E-06	1.764E-05	2.050E-05	4.080E-05	2.553E-06	4.409E-06	7.175E-06	1.414E-05	4.039E-01	6.548E-07	6.364E-05
LDA	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.690E-06	2.733E-05	0.000E+00	4.409E-06	3.392E-06	7.801E-06	0.000E+00	0.000E+00	0.000E+00
LDA	Plug-in Hybric	4.96E-04	6.497E-06	4.628E-04	2.718E-06	5.085E-07	1.764E-05	9.428E-06	2.757E-05	4.676E-07	4.409E-06	3.300E-06	8.177E-06	2.749E-01	9.387E-07	1.094E-06
LDT1	Gasoline	3.44E-03	4.907E-05	1.278E-03	5.777E-06	1.354E-06	1.764E-05	2.408E-05	4.307E-05	1.245E-06	4.409E-06	8.428E-06	1.408E-05	5.843E-01	2.649E-06	7.592E-06
LDT1	Diesel	5.38E-02	7.023E-05	4.211E-04	7.130E-06	9.999E-06	1.764E-05	2.390E-05	5.153E-05	9.566E-06	4.409E-06	8.364E-06	2.234E-05	7.525E-01	1.837E-06	1.186E-04
LDT1	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.693E-06	2.733E-05	0.000E+00	4.409E-06	3.393E-06	7.802E-06	0.000E+00	0.000E+00	0.000E+00
LDT1	Plug-in Hybric	4.93E-04	6.473E-06	4.611E-04	2.708E-06	4.870E-07	1.764E-05	9.431E-06	2.756E-05	4.478E-07	4.409E-06	3.301E-06	8.158E-06	2.739E-01	9.341E-07	1.088E-06
LDT2	Gasoline	3.54E-03	5.169E-05	1.406E-03	5.986E-06	1.276E-06	1.764E-05	2.388E-05	4.279E-05	1.173E-06	4.409E-06	8.359E-06	1.394E-05	6.055E-01	3.254E-06	7.796E-06
LDT2	Diesel	3.98E-02	7.054E-05	4.187E-04	5.281E-06	9.964E-06	1.764E-05	2.385E-05	5.145E-05	9.532E-06	4.409E-06	8.347E-06	2.229E-05	5.573E-01	1.835E-06	8.781E-05
LDT2	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.694E-06	2.733E-05	0.000E+00	4.409E-06	3.393E-06	7.802E-06	0.000E+00	0.000E+00	0.000E+00
LDT2	Plug-in Hybric	4.92E-04	6.487E-06	4.620E-04	2.714E-06	4.980E-07	1.764E-05	9.433E-06	2.757E-05	4.579E-07	4.409E-06	3.301E-06	8.168E-06	2.745E-01	9.337E-07	1.085E-06
LHD1	Gasoline	1.78E-03	4.680E-05	1.313E-03	1.635E-05	2.807E-06	1.764E-05	1.720E-04	1.924E-04	2.581E-06	4.409E-06	6.019E-05	6.718E-05	1.654E+00	2.701E-06	3.934E-06
LHD1	Diesel	9.52E-02	8.271E-04	5.561E-04	1.263E-05	4.670E-05	2.646E-05	1.720E-04	2.451E-04	4.468E-05	6.614E-06	6.019E-05	1.115E-04	1.332E+00	9.867E-06	2.099E-04
LHD1	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	8.598E-05	1.036E-04	0.000E+00	4.409E-06	3.009E-05	3.450E-05	0.000E+00	0.000E+00	0.000E+00
LHD2	Gasoline	2.22E-03	5.072E-05	1.330E-03	1.842E-05	2.755E-06	1.764E-05	2.006E-04	2.210E-04	2.533E-06	4.409E-06	7.022E-05	7.716E-05	1.864E+00	2.472E-06	4.886E-06
LHD2	Diesel	1.11E-01	1.198E-03	7.053E-04	1.478E-05	5.877E-05	2.646E-05	2.006E-04	2.858E-04	5.622E-05	6.614E-06	7.022E-05	1.331E-04	1.560E+00	1.225E-05	2.457E-04
LHD2	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	1.003E-04	1.179E-04	0.000E+00	4.409E-06	3.511E-05	3.952E-05	0.000E+00	0.000E+00	0.000E+00
MCY	Gasoline	3.60E-02	1.061E-03	2.359E-02	4.111E-06	5.255E-06	8.818E-06	2.646E-05	4.053E-05	4.899E-06	2.205E-06	9.259E-06	1.636E-05	4.158E-01	3.204E-04	7.931E-05
MDV	Gasoline	3.71E-03	5.901E-05	1.477E-03	7.271E-06	1.311E-06	1.764E-05	2.426E-05	4.321E-05	1.206E-06	4.409E-06	8.492E-06	1.411E-05	7.354E-01	3.496E-06	8.171E-06
MDV	Diesel	5.21E-02	3.021E-05	4.650E-04	6.907E-06	2.635E-06	1.764E-05	2.436E-05	4.463E-05	2.521E-06	4.409E-06	8.525E-06	1.545E-05	7.289E-01	6.926E-07	1.148E-04
MDV	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.707E-06	2.734E-05	0.000E+00	4.409E-06	3.397E-06	7.807E-06	0.000E+00	0.000E+00	0.000E+00
MDV	Plug-in Hybric	4.86E-04	6.491E-06	4.623E-04	2.715E-06	5.060E-07	1.764E-05	9.442E-06	2.758E-05	4.652E-07	4.409E-06	3.305E-06	8.179E-06	2.747E-01	9.283E-07	1.072E-06
MH	Gasoline	1.81E-02	4.330E-04	3.520E-04	4.244E-05	3.240E-06	2.646E-05	9.931E-05	1.290E-04	2.979E-06	6.614E-06	3.476E-05	4.435E-05	4.293E+00	8.953E-06	3.995E-05
MH	Diesel	1.72E-01	5.901E-03	5.892E-04	2.275E-05	7.365E-05	3.527E-05	9.886E-05	2.078E-04	7.046E-05	8.818E-06	3.460E-05	1.139E-04	2.401E+00	9.161E-06	3.782E-04
Motor Coach	Diesel	2.41E-01	2.063E-03	7.915E-05	3.197E-05	5.216E-05	2.646E-05	1.796E-04	2.582E-04	4.991E-05	6.614E-06	6.287E-05	1.194E-04	3.376E+00	1.078E-06	5.319E-04
OBUS	Gasoline	1.71E-02	6.436E-04	1.169E-03	3.360E-05	2.833E-06	2.646E-05	9.896E-05	1.282E-04	2.605E-06	6.614E-06	3.463E-05	4.385E-05	3.399E+00	1.290E-05	3.765E-05
OBUS	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.948E-05	7.593E-05	0.000E+00	6.614E-06	1.732E-05	2.393E-05	0.000E+00	0.000E+00	0.000E+00
PTO	Diesel	2.74E-01	5.528E-03	3.902E-04	3.635E-05	8.749E-06	0.000E+00	0.000E+00	8.749E-06	8.370E-06	0.000E+00	0.000E+00	8.370E-06	3.838E+00	1.462E-06	6.047E-04
PTO	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SBUS	Gasoline	1.50E-02	3.733E-04	4.515E-04	1.643E-05	2.695E-06	1.764E-05	9.902E-05	1.194E-04	2.478E-06	4.409E-06	3.466E-05	4.155E-05	1.662E+00	4.069E-06	3.316E-05
SBUS	Diesel	1.63E-01	9.375E-04	1.280E-04	2.165E-05	8.112E-06	2.646E-05	9.902E-05	1.336E-04	7.761E-06	6.614E-06	3.466E-05	4.903E-05	2.287E+00	8.956E-07	3.603E-04
SBUS	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.467E-05	4.951E-05	7.419E-05	0.000E+00	6.168E-06	1.733E-05	2.350E-05	0.000E+00	0.000E+00	0.000E+00
SBUS	Natural Gas	2.20E-01	3.821E-04	1.440E-02	0.000E+00	8.100E-06	2.646E-05	9.902E-05	1.336E-04	7.448E-06	6.614E-06	3.466E-05	4.872E-05	2.385E+00	5.179E-03	4.861E-04
T6 CAIRP Class 4	Diesel	1.60E-01	3.892E-04	6.023E-05	2.120E-05	1.185E-05	2.646E-05	9.329E-05	1.316E-04	1.133E-05	6.614E-06	3.265E-05	5.060E-05	2.238E+00	5.458E-07	3.527E-04
T6 CAIRP Class 4	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.664E-05	7.310E-05	0.000E+00	6.614E-06	1.632E-05	2.294E-05	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 5	Diesel	1.60E-01	3.919E-04	6.032E-05	2.121E-05	1.187E-05	2.646E-05	9.329E-05	1.316E-04	1.136E-05	6.614E-06	3.265E-05	5.062E-05	2.239E+00	5.468E-07	3.528E-04
T6 CAIRP Class 5	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.664E-05	7.310E-05	0.000E+00	6.614E-06	1.632E-05	2.294E-05	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 6	Diesel	1.60E-01	3.913E-04	6.010E-05	2.118E-05	1.189E-05	2.646E-05	9.329E-05	1.316E-04	1.138E-05	6.614E-06	3.265E-05	5.064E-05	2.236E+00	5.445E-07	3.523E-04
T6 CAIRP Class 6	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.664E-05	7.310E-05	0.000E+00	6.614E-06	1.632E-05	2.294E-05	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 7	Diesel	1.41E-01	4.272E-04	6.472E-05	1.871E-05	1.259E-05	2.646E-05	9.329E-05	1.323E-04	1.205E-05	6.614E-06	3.265E-05	5.131E-05	1.976E+00	5.863E-07	3.113E-04
T6 CAIRP Class 7	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.664E-05	7.310E-05	0.000E+00	6.614E-06	1.632E-05	2.294E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Cl	Diesel	1.65E-01	7.989E-04	1.175E-04	2.187E-05	4.212E-06	2.646E-05	1.049E-04	1.355E-04	4.030E-06	6.614E-06	3.670E-05	4.734E-05	2.309E+00	6.207E-07	3.638E-04
T6 Instate Delivery Cl	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.243E-05	7.888E-05	0.000E+00	6.614E-06	1.835E-05	2.496E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Cl	Diesel	1.65E-01	7.839E-04	1.167E-04	2.189E-05	4.189E-06	2.646E-05	1.049E-04	1.355E-04	4.007E-06	6.614E-06	3.670E-05	4.732E-05	2.312E+00	6.171E-07	3.642E-04
T6 Instate Delivery Cl	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.243E-05	7.888E-05	0.000E+00	6.614E-06	1.835E-05	2.496E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Cl	Diesel	1.65E-01	8.006E-04	1.173E-04	2.188E-05	4.223E-06	2.646E-05	1.049E-04	1.355E-04	4.041E-06	6.614E-06	3.670E-05	4.735E-05	2.310E+00	6.227E-07	3.640E-04
T6 Instate Delivery Cl	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.243E-05	7.888E-05	0.000E+00	6.614E-06	1.835E-05	2.496E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Cl	Diesel	1.70E-01	1.268E-03	1.498E-04	2.250E-05	5.327E-06	2.646E-05	1.049E-04	1.366E-04	5.096E-06	6.614E-06	3.670E-05	4.841E-05	2.376E+00	8.082E-07	3.743E-04
T6 Instate Delivery Cl	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.243E-05	7.888E-05	0.000E+00	6.614E-06	1.835E-05	2.496E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Cl	Natural Gas	2.16E-01	1.325E-04	8.417E-03	0.000E+00	4.445E-06	2.646E-05	1.049E-04	1.358E-04	4.087E-06	6.614E-06	3.670E-05	4.740E-05	2.341E+00	1.925E-03	4.773E-04
T6 Instate Other Clas	Diesel	1.60E-01	5.974E-04	9.312E-05	2.118E-05	6.869E-06	2.646E-05	9.891E-05	1.322E-04	6.572E-06	6.614E-06	3.462E-05	4.780E-05	2.236E+00	5.595E-07	3.523E-04
T6 Instate Other Clas	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Clas	Diesel	1.60E-01	5.939E-04	9.302E-05	2.119E-05	6.866E-06	2.646E-05	9.891E-05	1.322E-04	6.569E-06	6.614E-06	3.462E-05	4.780E-05	2.237E+00	5.617E-07	3.525E-04
T6 Instate Other Clas	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Clas	Diesel	1.60E-01	6.038E-04	9.318E-05	2.117E-05	6.900E-06	2.646E-05	9.891E-05	1.323E-04	6.602E-06	6.614E-06	3.462E-05	4.783E-05	2.236E+00	5.611E-07	3.523E-04
T6 Instate Other Clas	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Clas	Diesel	1.61E-01	1.036E-03	1.174E-04	2.136E-05	8.925E-06	2.646E-05	9.891E-05	1.343E-04	8.539E-06	6.614E-06	3.462E-05	4.977E-05	2.256E+00	7.537E-07	3.554E-04
T6 Instate Other Clas	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Clas	Natural Gas	1.83E-01	1.154E-04	5.890E-03	0.000E+00	3.431E-06	2.646E-05	9.891E-05	1.288E-04	3.154E-06	6.614E-06	3.462E-05	4.439E-05	1.984E+00	1.537E-03	4.044E-04
T6 Instate Tractor Clc	Diesel	1.60E-01	6.023E-04	9.199E-05	2.118E-05	6.841E-06	2.646E-05	9.891E-05	1.322E-04	6.545E-06	6.614E-06	3.462E-05	4.778E-05	2.236E+00	5.515E-07	3.523E-04
T6 Instate Tractor Clc	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Tractor Clc	Diesel	1.48E-01	8.602E-04	1.091E-04	1.956E-05	8.179E-06	2.646E-05	9.891E-05	1.335E-04	7.825E-06	6.614E-06	3.462E-05	4.906E-05	2.066E+00	6.794E-07	3.255E-04
T6 Instate Tractor Clc	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Tractor Clc	Natural Gas	1.80E-01	1.152E-04	5.890E-03	0.000E+00	3.432E-06	2.646E-05	9.891E-05	1.288E-04	3.155E-06	6.614E-06	3.462E-05	4.439E-05	1.950E+00	1.537E-03	3.975E-04
T6 OOS Class 4	Diesel	1.50E-01	4.866E-04	5.890E-05	1.989E-05	1.223E-05	2.646E-05	9.329E-05	1.320E-04	1.170E-05	6.614E-06	3.265E-05	5.096E-05	2.100E+00	5.341E-07	3.309E-04

T6 OOS Class 5	Diesel	1.50E-01	4.913E-04	5.906E-05	1.990E-05	1.227E-05	2.646E-05	9.329E-05	1.320E-04	1.174E-05	6.614E-06	3.265E-05	5.100E-05	2.102E+00	5.361E-07	3.311E-04
T6 OOS Class 6	Diesel	1.50E-01	4.815E-04	5.868E-05	1.985E-05	1.218E-05	2.646E-05	9.329E-05	1.319E-04	1.166E-05	6.614E-06	3.265E-05	5.092E-05	2.096E+00	5.316E-07	3.303E-04
T6 OOS Class 7	Diesel	1.35E-01	5.089E-04	6.329E-05	1.789E-05	1.291E-05	2.646E-05	9.329E-05	1.326E-04	1.235E-05	6.614E-06	3.265E-05	5.161E-05	1.889E+00	5.734E-07	2.977E-04
T6 Public Class 4	Diesel	1.72E-01	1.492E-03	1.335E-04	2.276E-05	1.071E-05	2.646E-05	1.018E-04	1.390E-04	1.025E-05	6.614E-06	3.562E-05	5.249E-05	2.404E+00	1.446E-06	3.788E-04
T6 Public Class 4	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.089E-05	7.735E-05	0.000E+00	6.614E-06	1.781E-05	2.443E-05	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 4	Natural Gas	1.99E-01	1.296E-04	6.741E-03	0.000E+00	3.952E-06	2.646E-05	1.018E-04	1.322E-04	3.634E-06	6.614E-06	3.562E-05	4.587E-05	2.155E+00	1.947E-03	4.393E-04
T6 Public Class 5	Diesel	1.72E-01	1.259E-03	1.356E-04	2.284E-05	9.025E-06	2.646E-05	1.018E-04	1.373E-04	8.635E-06	6.614E-06	3.562E-05	5.087E-05	2.412E+00	1.376E-06	3.800E-04
T6 Public Class 5	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.089E-05	7.735E-05	0.000E+00	6.614E-06	1.781E-05	2.443E-05	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 5	Natural Gas	2.00E-01	1.784E-04	6.750E-03	0.000E+00	3.721E-06	2.646E-05	1.018E-04	1.320E-04	3.421E-06	6.614E-06	3.562E-05	4.566E-05	2.167E+00	1.926E-03	4.418E-04
T6 Public Class 6	Diesel	1.72E-01	1.097E-03	1.235E-04	2.274E-05	8.161E-06	2.646E-05	1.018E-04	1.364E-04	7.808E-06	6.614E-06	3.562E-05	5.005E-05	2.401E+00	1.149E-06	3.783E-04
T6 Public Class 6	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.089E-05	7.735E-05	0.000E+00	6.614E-06	1.781E-05	2.443E-05	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 6	Natural Gas	2.00E-01	1.343E-04	6.741E-03	0.000E+00	3.930E-06	2.646E-05	1.018E-04	1.322E-04	3.613E-06	6.614E-06	3.562E-05	4.585E-05	2.163E+00	1.945E-03	4.410E-04
T6 Public Class 7	Diesel	1.70E-01	9.241E-04	1.119E-04	2.247E-05	7.162E-06	2.646E-05	1.018E-04	1.354E-04	6.852E-06	6.614E-06	3.562E-05	4.909E-05	2.373E+00	9.873E-07	3.738E-04
T6 Public Class 7	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.089E-05	7.735E-05	0.000E+00	6.614E-06	1.781E-05	2.443E-05	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 7	Natural Gas	2.00E-01	1.420E-04	6.741E-03	0.000E+00	3.893E-06	2.646E-05	1.018E-04	1.321E-04	3.580E-06	6.614E-06	3.562E-05	4.582E-05	2.165E+00	1.942E-03	4.414E-04
T6 Utility Class 5	Diesel	1.60E-01	4.247E-04	7.832E-05	2.124E-05	5.106E-06	2.646E-05	1.003E-04	1.319E-04	4.885E-06	6.614E-06	3.511E-05	4.660E-05	2.243E+00	5.209E-07	3.533E-04
T6 Utility Class 5	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.015E-05	7.661E-05	0.000E+00	6.614E-06	1.755E-05	2.417E-05	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 5	Natural Gas	1.87E-01	1.199E-04	6.052E-03	0.000E+00	3.607E-06	2.646E-05	1.003E-04	1.304E-04	3.317E-06	6.614E-06	3.511E-05	4.504E-05	2.019E+00	1.718E-03	4.115E-04
T6 Utility Class 6	Diesel	1.60E-01	4.154E-04	7.833E-05	2.124E-05	5.069E-06	2.646E-05	1.003E-04	1.318E-04	4.849E-06	6.614E-06	3.511E-05	4.657E-05	2.243E+00	5.210E-07	3.533E-04
T6 Utility Class 6	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.015E-05	7.661E-05	0.000E+00	6.614E-06	1.755E-05	2.417E-05	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 6	Natural Gas	1.87E-01	1.199E-04	6.052E-03	0.000E+00	3.607E-06	2.646E-05	1.003E-04	1.304E-04	3.317E-06	6.614E-06	3.511E-05	4.504E-05	2.019E+00	1.718E-03	4.115E-04
T6 Utility Class 7	Diesel	1.60E-01	4.046E-04	7.756E-05	2.125E-05	5.041E-06	2.646E-05	1.003E-04	1.318E-04	4.823E-06	6.614E-06	3.511E-05	4.654E-05	2.244E+00	5.159E-07	3.536E-04
T6 Utility Class 7	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.015E-05	7.661E-05	0.000E+00	6.614E-06	1.755E-05	2.417E-05	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 7	Natural Gas	1.87E-01	1.199E-04	6.052E-03	0.000E+00	3.607E-06	2.646E-05	1.003E-04	1.304E-04	3.317E-06	6.614E-06	3.511E-05	4.504E-05	2.019E+00	1.718E-03	4.115E-04
T6TS	Gasoline	6.98E-03	1.526E-04	4.074E-04	3.362E-05	3.296E-06	2.646E-05	9.931E-05	1.291E-04	3.031E-06	6.614E-06	3.476E-05	4.440E-05	3.401E+00	6.712E-06	1.538E-05
T6TS	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.966E-05	7.611E-05	0.000E+00	6.614E-06	1.738E-05	2.399E-05	0.000E+00	0.000E+00	0.000E+00
T7 CAIRP Class 8	Diesel	2.01E-01	2.652E-03	8.514E-05	2.669E-05	6.533E-05	7.937E-05	1.804E-04	3.251E-04	6.250E-05	1.984E-05	6.315E-05	1.455E-04	2.819E+00	1.169E-06	4.441E-04
T7 CAIRP Class 8	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	9.028E-05	1.696E-04	0.000E+00	1.984E-05	3.160E-05	5.144E-05	0.000E+00	0.000E+00	0.000E+00
T7 NNOOS Class 8	Diesel	1.93E-01	2.930E-03	8.282E-05	2.556E-05	6.446E-05	7.937E-05	1.804E-04	3.242E-04	6.167E-05	1.984E-05	6.314E-05	1.447E-04	2.699E+00	1.136E-06	4.252E-04
T7 NOOS Class 8	Diesel	1.93E-01	3.014E-03	8.537E-05	2.554E-05	6.824E-05	7.937E-05	1.804E-04	3.280E-04	6.529E-05	1.984E-05	6.315E-05	1.483E-04	2.697E+00	1.172E-06	4.250E-04
T7 Other Port Class 8	Diesel	2.16E-01	2.726E-03	1.400E-04	2.863E-05	3.621E-05	7.937E-05	2.076E-04	3.232E-04	3.464E-05	1.984E-05	7.265E-05	1.271E-04	3.023E+00	1.027E-06	4.764E-04
T7 Other Port Class 8	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	1.038E-04	1.832E-04	0.000E+00	1.984E-05	3.633E-05	5.617E-05	0.000E+00	0.000E+00	0.000E+00
T7 POAK Class 8	Diesel	2.15E-01	2.834E-03	1.428E-04	2.854E-05	3.777E-05	7.937E-05	2.076E-04	3.247E-04	3.614E-05	1.984E-05	7.265E-05	1.286E-04	3.013E+00	1.048E-06	4.748E-04
T7 POAK Class 8	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	1.038E-04	1.832E-04	0.000E+00	1.984E-05	3.633E-05	5.617E-05	0.000E+00	0.000E+00	0.000E+00
T7 POLA Class 8	Diesel	2.19E-01	3.080E-03	1.542E-04	2.896E-05	4.162E-05	7.937E-05	2.056E-04	3.266E-04	3.982E-05	1.984E-05	7.196E-05	1.316E-04	3.058E+00	1.101E-06	4.818E-04
T7 POLA Class 8	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	1.038E-04	1.831E-04	0.000E+00	1.984E-05	3.632E-05	5.616E-05	0.000E+00	0.000E+00	0.000E+00
T7 POLA Class 8	Natural Gas	2.35E-01	3.821E-04	1.097E-02	0.000E+00	5.565E-06	7.937E-05	2.066E-04	2.916E-04	5.117E-06	1.984E-05	7.232E-05	9.728E-05	2.542E+00	2.586E-03	5.182E-04
T7 Public Class 8	Diesel	2.54E-01	4.132E-03	3.214E-04	3.367E-05	2.208E-05	7.937E-05	2.363E-04	3.378E-04	2.113E-05	1.984E-05	8.271E-05	1.237E-04	3.555E+00	2.838E-06	5.601E-04
T7 Public Class 8	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	1.197E-04	1.991E-04	0.000E+00	1.984E-05	4.189E-05	6.173E-05	0.000E+00	0.000E+00	0.000E+00
T7 Public Class 8	Natural Gas	2.98E-01	6.224E-04	1.797E-02	0.000E+00	7.200E-06	7.937E-05	2.342E-04	3.208E-04	6.620E-06	1.984E-05	8.199E-05	1.084E-04	3.218E+00	3.769E-03	6.560E-04
T7 Single Concrete/T	Diesel	2.28E-01	1.781E-03	9.628E-05	3.024E-05	3.023E-05	7.937E-05	1.954E-04	3.050E-04	2.892E-05	1.984E-05	6.839E-05	1.171E-04	3.193E+00	8.834E-07	5.031E-04
T7 Single Concrete/T	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	9.786E-05	1.772E-04	0.000E+00	1.984E-05	3.425E-05	5.409E-05	0.000E+00	0.000E+00	0.000E+00
T7 Single Concrete/T	Natural Gas	2.29E-01	3.624E-04	8.912E-03	0.000E+00	4.972E-06	7.937E-05	1.954E-04	2.798E-04	4.572E-06	1.984E-05	6.840E-05	9.281E-05	2.479E+00	2.352E-03	5.054E-04
T7 Single Dump Class	Diesel	2.35E-01	2.417E-03	1.220E-04	3.119E-05	3.863E-05	7.937E-05	1.917E-04	3.097E-04	3.696E-05	1.984E-05	6.710E-05	1.239E-04	3.293E+00	1.055E-06	5.189E-04
T7 Single Dump Class	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	9.782E-05	1.772E-04	0.000E+00	1.984E-05	3.424E-05	5.408E-05	0.000E+00	0.000E+00	0.000E+00
T7 Single Dump Class	Natural Gas	2.35E-01	4.462E-04	1.006E-02	0.000E+00	4.786E-06	7.937E-05	1.919E-04	2.761E-04	4.400E-06	1.984E-05	6.717E-05	9.142E-05	2.543E+00	2.350E-03	5.184E-04
T7 Single Other Class	Diesel	2.32E-01	2.180E-03	1.084E-04	3.072E-05	3.596E-05	7.937E-05	1.928E-04	3.081E-04	3.440E-05	1.984E-05	6.748E-05	1.217E-04	3.244E+00	9.804E-07	5.112E-04
T7 Single Other Class	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	9.783E-05	1.772E-04	0.000E+00	1.984E-05	3.424E-05	5.408E-05	0.000E+00	0.000E+00	0.000E+00
T7 Single Other Class	Natural Gas	2.31E-01	3.877E-04	9.257E-03	0.000E+00	4.916E-06	7.937E-05	1.929E-04	2.772E-04	4.520E-06	1.984E-05	6.752E-05	9.188E-05	2.500E+00	2.352E-03	5.097E-04
T7 SWCV Class 8	Diesel	5.38E-01	4.698E-03	1.360E-04	7.129E-05	3.720E-05	7.937E-05	4.630E-04	5.795E-04	3.559E-05	1.984E-05	1.620E-04	2.175E-04	7.529E+00	2.748E-06	1.186E-03
T7 SWCV Class 8	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	2.315E-04	3.108E-04	0.000E+00	1.984E-05	8.102E-05	1.009E-04	0.000E+00	0.000E+00	0.000E+00
T7 SWCV Class 8	Natural Gas	2.71E-01	7.871E-04	2.242E-02	0.000E+00	3.363E-06	7.937E-05	4.630E-04	5.457E-04	3.092E-06	1.984E-05	1.620E-04	1.850E-04	2.929E+00	1.123E-03	5.971E-04
T7 Tractor Class 8	Diesel	2.01E-01	2.609E-03	1.060E-04	2.669E-05	4.806E-05	7.937E-05	1.891E-04	3.165E-04	4.598E-05	1.984E-05	6.618E-05	1.320E-04	2.818E+00	1.049E-06	4.440E-04
T7 Tractor Class 8	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	9.543E-05	1.748E-04	0.000E+00	1.984E-05	3.340E-05	5.324E-05	0.000E+00	0.000E+00	0.000E+00
T7 Tractor Class 8	Natural Gas	2.20E-01	3.716E-04	8.320E-03	0.000E+00	4.735E-06	7.937E-05	1.890E-04	2.731E-04	4.354E-06	1.984E-05	6.615E-05	9.034E-05	2.377E+00	2.250E-03	4.847E-04
T7 Utility Class 8	Diesel	2.43E-01	2.328E-03	2.229E-04	3.225E-05	1.589E-05	7.937E-05	2.230E-04	3.183E-04	1.520E-05	1.984E-05	7.805E-05	1.131E-04	3.405E+00	1.137E-06	5.365E-04
T7 Utility Class 8	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	1.145E-04	1.939E-04	0.000E+00	1.984E-05	4.007E-05	5.992E-05	0.000E+00	0.000E+00	0.000E+00
T7IS	Gasoline	1.01E-01	4.804E-03	6.629E-02	3.941E-05	3.431E-06	4.409E-05	2.125E-04	2.600E-04	3.155E-06	1.102E-05	7.437E-05	8.855E-05	3.987E+00	2.101E-04	2.229E-04
T7IS	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.409E-05	1.068E-04	1.509E-04	0.000E+00	1.102E-05	3.739E-05	4.841E-05	0.000E+00	0.000E+00	0.000E+00
UBUS	Diesel	1.04E-01	4.155E-04	4.034E-04	1.381E-05	3.042E-05	2.646E-05	2.006E-04	2.575E-04	2.911E-05	6.614E-06	7.022E-05	1.059E-04	1.458E+00	9.711E-06	2.297E-04
UBUS	Electricity	0.00E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.051E-05	1.213E-04	1.718E-04	0.000E+00	1.263E-05	4.244E-05	5.507E-05	0.000E+00	0.000E+00	0.000E+00
UBUS	Natural Gas	1.63E-01	4.155E-04	4.034E-04	0.000E+00	3.042E-05	2.646E-05	2.006E-04	2.575E-04	2.911E-05	6.614E-06	7.022E-05	1.059E-04	1.760E+00	9.711E-06	3.587E-04
	total															

Source: EMFAC2021 (v1.
Region Type: Sub-Area
Region: San Joaquin (SJV)
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x
Units: miles/day for CVMT and EVM

1.0E-06 | MTens/Mile

Vehicle Category	Fuel	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2(Pavley+ACC)_RUNEX	CH4_RUNEX	N2O_RUNEX
All Other Buses	Diesel	5.168E-08	1.219E-06	1.900E-07	9.854E-09	1.490E-08	1.200E-08	4.614E-08	7.304E-08	1.425E-08	3.000E-09	1.615E-08	3.340E-08	1.041E-03	2.400E-09	1.640E-07
All Other Buses	Natural Gas	1.225E-08	6.740E-08	3.436E-06	0.000E+00	1.793E-09	1.200E-08	4.614E-08	5.993E-08	1.648E-09	3.000E-09	1.615E-08	2.080E-08	9.108E-04	8.573E-07	1.857E-07
LDA	Gasoline	3.242E-09	2.041E-08	5.460E-07	2.265E-09	5.614E-10	8.000E-09	9.279E-09	1.784E-08	5.162E-10	2.000E-09	3.248E-09	5.764E-09	2.292E-04	1.117E-09	3.315E-09
LDA	Diesel	6.395E-09	1.771E-08	1.959E-07	1.736E-09	1.210E-09	8.000E-09	9.298E-09	1.851E-08	1.158E-09	2.000E-09	3.254E-09	6.412E-09	1.832E-04	2.970E-10	2.887E-08
LDA	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.396E-09	1.240E-08	0.000E+00	2.000E-09	1.538E-09	3.538E-09	0.000E+00	0.000E+00	0.000E+00
LDA	Plug-in Hybric	1.398E-09	2.947E-09	2.099E-07	1.233E-09	2.307E-10	8.000E-09	4.276E-09	1.251E-08	2.121E-10	2.000E-09	1.497E-09	3.709E-09	1.247E-04	4.258E-10	4.964E-10
LDT1	Gasoline	3.586E-09	2.226E-08	5.798E-07	2.620E-09	6.142E-10	8.000E-09	1.092E-08	1.954E-08	5.647E-10	2.000E-09	3.823E-09	6.388E-09	2.651E-04	1.201E-09	3.444E-09
LDT1	Diesel	1.794E-08	3.186E-08	1.910E-07	3.234E-09	4.535E-09	8.000E-09	1.084E-08	2.337E-08	4.339E-09	2.000E-09	3.794E-09	1.013E-08	3.413E-04	8.333E-10	5.378E-08
LDT1	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.397E-09	1.240E-08	0.000E+00	2.000E-09	1.539E-09	3.539E-09	0.000E+00	0.000E+00	0.000E+00
LDT1	Plug-in Hybric	1.393E-09	2.936E-09	2.092E-07	1.228E-09	2.209E-10	8.000E-09	4.278E-09	1.250E-08	2.031E-10	2.000E-09	1.497E-09	3.700E-09	1.243E-04	4.237E-10	4.933E-10
LDT2	Gasoline	4.490E-09	2.345E-08	6.377E-07	2.715E-09	5.786E-10	8.000E-09	1.083E-08	1.941E-08	5.320E-10	2.000E-09	3.792E-09	6.324E-09	2.747E-04	1.476E-09	3.536E-09
LDT2	Diesel	1.792E-08	3.200E-08	1.899E-07	2.395E-09	4.519E-09	8.000E-09	1.082E-08	2.334E-08	4.324E-09	2.000E-09	3.786E-09	1.011E-08	2.528E-04	8.321E-10	3.983E-08
LDT2	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.397E-09	1.240E-08	0.000E+00	2.000E-09	1.539E-09	3.539E-09	0.000E+00	0.000E+00	0.000E+00
LDT2	Plug-in Hybric	1.395E-09	2.942E-09	2.096E-07	1.231E-09	2.259E-10	8.000E-09	4.279E-09	1.250E-08	2.077E-10	2.000E-09	1.498E-09	3.705E-09	1.245E-04	4.235E-10	4.919E-10
LHD1	Gasoline	4.160E-09	2.123E-08	5.956E-07	7.417E-09	1.273E-09	8.000E-09	7.800E-08	8.727E-08	1.171E-09	2.000E-09	2.730E-08	3.047E-08	7.503E-04	1.225E-09	1.784E-09
LHD1	Diesel	9.635E-08	3.752E-07	2.523E-07	5.727E-09	2.118E-08	1.200E-08	7.800E-08	1.112E-07	2.027E-08	3.000E-09	2.730E-08	5.057E-08	6.044E-04	4.475E-09	9.522E-08
LHD1	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	3.900E-08	4.700E-08	0.000E+00	2.000E-09	1.365E-08	1.565E-08	0.000E+00	0.000E+00	0.000E+00
LHD2	Gasoline	3.712E-09	2.301E-08	6.031E-07	8.357E-09	1.250E-09	8.000E-09	9.100E-08	1.002E-07	1.149E-09	2.000E-09	3.185E-08	3.500E-08	8.454E-04	1.121E-09	2.216E-09
LHD2	Diesel	1.196E-07	5.435E-07	3.199E-07	6.703E-09	2.666E-08	1.200E-08	9.100E-08	1.297E-07	2.550E-08	3.000E-09	3.185E-08	6.035E-08	7.074E-04	5.555E-09	1.115E-07
LHD2	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.550E-08	5.350E-08	0.000E+00	2.000E-09	1.593E-08	1.793E-08	0.000E+00	0.000E+00	0.000E+00
MCY	Gasoline	8.771E-07	4.811E-07	1.070E-05	1.865E-09	2.384E-09	4.000E-09	1.200E-08	1.838E-08	2.222E-09	1.000E-09	4.200E-09	7.422E-09	1.886E-04	1.453E-07	3.597E-08
MDV	Gasoline	5.025E-09	2.677E-08	6.699E-07	3.298E-09	5.949E-10	8.000E-09	1.101E-08	1.960E-08	5.470E-10	2.000E-09	3.852E-09	6.399E-09	3.336E-04	1.586E-09	3.707E-09
MDV	Diesel	6.763E-09	1.371E-08	2.109E-07	3.133E-09	1.195E-09	8.000E-09	1.105E-08	2.024E-08	1.143E-09	2.000E-09	3.867E-09	7.010E-09	3.306E-04	3.141E-10	5.209E-08
MDV	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.403E-09	1.240E-08	0.000E+00	2.000E-09	1.541E-09	3.541E-09	0.000E+00	0.000E+00	0.000E+00
MDV	Plug-in Hybric	1.396E-09	2.944E-09	2.097E-07	1.232E-09	2.295E-10	8.000E-09	4.283E-09	1.251E-08	2.110E-10	2.000E-09	1.499E-09	3.710E-09	1.246E-04	4.211E-10	4.861E-10
MH	Gasoline	1.155E-08	1.964E-07	1.597E-07	1.925E-08	1.470E-09	1.200E-08	4.505E-08	5.852E-08	1.351E-09	3.000E-09	1.577E-08	2.012E-08	1.947E-03	4.061E-09	1.812E-08
MH	Diesel	8.946E-08	2.677E-06	2.672E-07	1.032E-08	3.341E-08	1.600E-08	4.484E-08	9.425E-08	3.196E-08	4.000E-09	1.569E-08	5.166E-08	1.089E-03	4.155E-09	1.716E-07
Motor Coach	Diesel	1.053E-08	9.358E-07	3.590E-08	1.450E-08	2.366E-08	1.200E-08	8.147E-08	1.171E-07	2.264E-08	3.000E-09	2.852E-08	5.415E-08	1.531E-03	4.891E-10	2.413E-07
OBUS	Gasoline	2.656E-08	2.919E-07	5.303E-07	1.524E-08	1.285E-09	1.200E-08	4.489E-08	5.817E-08	1.182E-09	3.000E-09	1.571E-08	1.989E-08	1.542E-03	5.852E-09	1.708E-08
OBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.244E-08	3.444E-08	0.000E+00	3.000E-09	7.855E-09	1.086E-08	0.000E+00	0.000E+00	0.000E+00
PTO	Diesel	1.428E-08	2.508E-06	1.770E-07	1.649E-08	3.968E-09	0.000E+00	0.000E+00	3.968E-09	3.797E-09	0.000E+00	0.000E+00	3.797E-09	1.741E-03	6.632E-10	2.743E-07
PTO	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SBUS	Gasoline	7.784E-09	1.693E-07	2.048E-07	7.452E-09	1.222E-09	8.000E-09	4.492E-08	5.414E-08	1.124E-09	2.000E-09	1.572E-08	1.884E-08	7.538E-04	1.845E-09	1.504E-08
SBUS	Diesel	8.747E-09	4.252E-07	5.804E-08	9.822E-09	3.679E-09	1.200E-08	4.492E-08	6.060E-08	3.520E-09	3.000E-09	1.572E-08	2.224E-08	1.037E-03	4.063E-10	1.634E-07
SBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.119E-08	2.246E-08	3.365E-08	0.000E+00	2.798E-09	7.860E-09	1.066E-08	0.000E+00	0.000E+00	0.000E+00
SBUS	Natural Gas	3.357E-08	1.733E-07	6.532E-06	0.000E+00	3.674E-09	1.200E-08	4.492E-08	6.059E-08	3.378E-09	3.000E-09	1.572E-08	2.210E-08	1.082E-03	2.349E-06	2.205E-07
T6 CAIRP Class 4	Diesel	5.330E-09	1.765E-07	2.732E-08	9.615E-09	5.373E-09	1.200E-08	4.231E-08	5.969E-08	5.141E-09	3.000E-09	1.481E-08	2.295E-08	1.015E-03	2.476E-10	1.600E-07
T6 CAIRP Class 4	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.116E-08	3.316E-08	0.000E+00	3.000E-09	7.405E-09	1.040E-08	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 5	Diesel	5.340E-09	1.778E-07	2.736E-08	9.619E-09	5.384E-09	1.200E-08	4.231E-08	5.970E-08	5.151E-09	3.000E-09	1.481E-08	2.296E-08	1.016E-03	2.480E-10	1.600E-07
T6 CAIRP Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.116E-08	3.316E-08	0.000E+00	3.000E-09	7.405E-09	1.040E-08	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 6	Diesel	5.317E-09	1.775E-07	2.726E-08	9.605E-09	5.394E-09	1.200E-08	4.231E-08	5.971E-08	5.161E-09	3.000E-09	1.481E-08	2.297E-08	1.014E-03	2.470E-10	1.598E-07
T6 CAIRP Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.116E-08	3.316E-08	0.000E+00	3.000E-09	7.405E-09	1.040E-08	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 7	Diesel	5.726E-09	1.938E-07	2.936E-08	8.486E-09	5.712E-09	1.200E-08	4.231E-08	6.003E-08	5.465E-09	3.000E-09	1.481E-08	2.327E-08	8.961E-04	2.660E-10	1.412E-07
T6 CAIRP Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.116E-08	3.316E-08	0.000E+00	3.000E-09	7.405E-09	1.040E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Cl	Diesel	6.061E-09	3.624E-07	5.328E-08	9.918E-09	1.911E-09	1.200E-08	4.756E-08	6.147E-08	1.828E-09	3.000E-09	1.665E-08	2.148E-08	1.047E-03	2.815E-10	1.650E-07
T6 Instate Delivery Cl	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.378E-08	3.578E-08	0.000E+00	3.000E-09	8.324E-09	1.132E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Cl	Diesel	6.026E-09	3.556E-07	5.291E-08	9.930E-09	1.900E-09	1.200E-08	4.756E-08	6.146E-08	1.818E-09	3.000E-09	1.665E-08	2.146E-08	1.049E-03	2.799E-10	1.652E-07
T6 Instate Delivery Cl	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.378E-08	3.578E-08	0.000E+00	3.000E-09	8.324E-09	1.132E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Cl	Diesel	6.081E-09	3.632E-07	5.322E-08	9.923E-09	1.916E-09	1.200E-08	4.756E-08	6.148E-08	1.833E-09	3.000E-09	1.665E-08	2.148E-08	1.048E-03	2.824E-10	1.651E-07
T6 Instate Delivery Cl	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.378E-08	3.578E-08	0.000E+00	3.000E-09	8.324E-09	1.132E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Cl	Diesel	7.893E-09	5.753E-07	6.796E-08	1.020E-08	2.416E-09	1.200E-08	4.756E-08	6.198E-08	2.312E-09	3.000E-09	1.665E-08	2.196E-08	1.078E-03	3.666E-10	1.698E-07
T6 Instate Delivery Cl	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.378E-08	3.578E-08	0.000E+00	3.000E-09	8.324E-09	1.132E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Cl	Natural Gas	1.247E-08	6.011E-08	3.818E-06	0.000E+00	2.016E-09	1.200E-08	4.756E-08	6.158E-08	1.854E-09	3.000E-09	1.665E-08	2.150E-08	1.062E-03	8.730E-07	2.165E-07
T6 Instate Other Clas	Diesel	5.464E-09	2.710E-07	4.224E-08	9.606E-09	3.116E-09	1.200E-08	4.486E-08	5.998E-08	2.981E-09	3.000E-09	1.570E-08	2.168E-08	1.014E-03	2.538E-10	1.598E-07
T6 Instate Other Clas	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Clas	Diesel	5.485E-09	2.694E-07	4.219E-08	9.610E-09	3.114E-09	1.200E-08	4.486E-08	5.998E-08	2.980E-09	3.000E-09	1.570E-08	2.168E-08	1.015E-03	2.548E-10	1.599E-07
T6 Instate Other Clas	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Clas	Diesel	5.480E-09	2.739E-07	4.227E-08	9.605E-09	3.130E-09	1.200E-08	4.486E-08	5.999E-08	2.995E-09	3.000E-09	1.570E-08	2.170E-08	1.014E-03	2.545E-10	1.598E-07
T6 Instate Other Clas	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Clas	Diesel	7.361E-09	4.697E-07	5.324E-08	9.690E-09	4.048E-09	1.200E-08	4.486E-08	6.091E-08	3.873E-09	3.000E-09	1.570E-08	2.258E-08	1.023E-03	3.419E-10	1.612E-07
T6 Instate Other Clas	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Clas	Natural Gas	9.962E-09	5.234E-08	2.672E-06	0.000E+00	1.556E-09	1.200E-08	4.486E-08	5.842E-08	1.431E-09	3.000E-09	1.570E-08	2.013E-08	8.998E-04	6.972E-07	1.834E-07
T6 Instate Tractor Clc	Diesel	5.386E-09	2.732E-07	4.173E-08	9.606E-09	3.103E-09	1.200E-08	4.486E-08	5.997E-08	2.969E-09	3.000E-09	1.570E-08	2.167E-08	1.014E-03	2.502E-10	1.598E-07
T6 Instate Tractor Clc	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Tractor Clc	Diesel	6.634E-09	3.902E-07	4.947E-08	8.873E-09	3.710E-09	1.200E-08	4.486E-08	6.057E-08	3.549E-09	3.000E-09	1.570E-08	2.225E-08	9.370E-04	3.082E-10	1.476E-07
T6 Instate Tractor Clc	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Tractor Clc	Natural Gas	9.963E-09	5.226E-08	2.672E-06	0.000E+00	1.557E-09	1.200E-08	4.486E-08	5.842E-08	1.431E-09	3.000E-09	1.570E-08	2.013E-08	8.845E-04	6.973E-07	1.803E-07
T6 OOS Class 4	Diesel	5.216E-09	2.207E-07	2.672E-08	9.022E-09	5.548E-09	1.200E-08	4.231E-08	5.986E-08	5.308E-09	3.000E-09	1.481E-08	2.312E-08	9.527E-04	2.422E-10	1.501E-07

T6 OOS Class 5	Diesel	5.235E-09	2.228E-07	2.679E-08	9.028E-09	5.566E-09	1.200E-08	4.231E-08	5.988E-08	5.325E-09	3.000E-09	1.481E-08	2.313E-08	9.534E-04	2.432E-10	1.502E-07
T6 OOS Class 6	Diesel	5.192E-09	2.184E-07	2.662E-08	9.005E-09	5.526E-09	1.200E-08	4.231E-08	5.984E-08	5.287E-09	3.000E-09	1.481E-08	2.310E-08	9.509E-04	2.411E-10	1.498E-07
T6 OOS Class 7	Diesel	5.599E-09	2.309E-07	2.871E-08	8.115E-09	5.854E-09	1.200E-08	4.231E-08	6.017E-08	5.601E-09	3.000E-09	1.481E-08	2.341E-08	8.570E-04	2.601E-10	1.350E-07
T6 Public Class 4	Diesel	1.412E-08	6.767E-07	6.055E-08	1.033E-08	4.859E-09	1.200E-08	4.617E-08	6.303E-08	4.649E-09	3.000E-09	1.616E-08	2.381E-08	1.090E-03	6.558E-10	1.718E-07
T6 Public Class 4	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.308E-08	3.508E-08	0.000E+00	3.000E-09	8.080E-09	1.108E-08	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 4	Natural Gas	1.262E-08	5.880E-08	3.058E-06	0.000E+00	1.793E-09	1.200E-08	4.617E-08	5.996E-08	1.648E-09	3.000E-09	1.616E-08	2.081E-08	9.776E-04	8.832E-07	1.993E-07
T6 Public Class 5	Diesel	1.344E-08	5.709E-07	6.150E-08	1.036E-08	4.094E-09	1.200E-08	4.617E-08	6.226E-08	3.917E-09	3.000E-09	1.616E-08	2.308E-08	1.094E-03	6.242E-10	1.724E-07
T6 Public Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.308E-08	3.508E-08	0.000E+00	3.000E-09	8.080E-09	1.108E-08	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 5	Natural Gas	1.248E-08	8.094E-08	3.062E-06	0.000E+00	1.688E-09	1.200E-08	4.617E-08	5.986E-08	1.552E-09	3.000E-09	1.616E-08	2.071E-08	9.831E-04	8.738E-07	2.004E-07
T6 Public Class 6	Diesel	1.122E-08	4.977E-07	5.602E-08	1.031E-08	3.702E-09	1.200E-08	4.617E-08	6.187E-08	3.541E-09	3.000E-09	1.616E-08	2.270E-08	1.089E-03	5.211E-10	1.716E-07
T6 Public Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.308E-08	3.508E-08	0.000E+00	3.000E-09	8.080E-09	1.108E-08	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 6	Natural Gas	1.261E-08	6.094E-08	3.058E-06	0.000E+00	1.782E-09	1.200E-08	4.617E-08	5.995E-08	1.639E-09	3.000E-09	1.616E-08	2.080E-08	9.813E-04	8.823E-07	2.000E-07
T6 Public Class 7	Diesel	9.642E-09	4.192E-07	5.075E-08	1.019E-08	3.248E-09	1.200E-08	4.617E-08	6.142E-08	3.108E-09	3.000E-09	1.616E-08	2.227E-08	1.076E-03	4.478E-10	1.695E-07
T6 Public Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.308E-08	3.508E-08	0.000E+00	3.000E-09	8.080E-09	1.108E-08	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 7	Natural Gas	1.258E-08	6.441E-08	3.058E-06	0.000E+00	1.766E-09	1.200E-08	4.617E-08	5.994E-08	1.624E-09	3.000E-09	1.616E-08	2.078E-08	9.821E-04	8.808E-07	2.002E-07
T6 Utility Class 5	Diesel	5.087E-09	1.927E-07	3.553E-08	9.632E-09	2.316E-09	1.200E-08	4.550E-08	5.981E-08	2.216E-09	3.000E-09	1.592E-08	2.114E-08	1.017E-03	2.363E-10	1.603E-07
T6 Utility Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.275E-08	3.475E-08	0.000E+00	3.000E-09	7.962E-09	1.096E-08	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 5	Natural Gas	1.114E-08	5.437E-08	2.745E-06	0.000E+00	1.636E-09	1.200E-08	4.550E-08	5.913E-08	1.505E-09	3.000E-09	1.592E-08	2.043E-08	9.157E-04	7.795E-07	1.867E-07
T6 Utility Class 6	Diesel	5.088E-09	1.884E-07	3.553E-08	9.633E-09	2.299E-09	1.200E-08	4.550E-08	5.980E-08	2.200E-09	3.000E-09	1.592E-08	2.112E-08	1.017E-03	2.363E-10	1.603E-07
T6 Utility Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.275E-08	3.475E-08	0.000E+00	3.000E-09	7.962E-09	1.096E-08	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 6	Natural Gas	1.114E-08	5.437E-08	2.745E-06	0.000E+00	1.636E-09	1.200E-08	4.550E-08	5.913E-08	1.505E-09	3.000E-09	1.592E-08	2.043E-08	9.157E-04	7.795E-07	1.867E-07
T6 Utility Class 7	Diesel	5.038E-09	1.835E-07	3.518E-08	9.639E-09	2.286E-09	1.200E-08	4.550E-08	5.978E-08	2.188E-09	3.000E-09	1.592E-08	2.111E-08	1.018E-03	2.340E-10	1.604E-07
T6 Utility Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.275E-08	3.475E-08	0.000E+00	3.000E-09	7.962E-09	1.096E-08	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 7	Natural Gas	1.114E-08	5.437E-08	2.745E-06	0.000E+00	1.636E-09	1.200E-08	4.550E-08	5.913E-08	1.505E-09	3.000E-09	1.592E-08	2.043E-08	9.157E-04	7.795E-07	1.867E-07
T6TS	Gasoline	1.121E-08	6.922E-08	1.848E-07	1.525E-08	1.495E-09	1.200E-08	4.505E-08	5.854E-08	1.375E-09	3.000E-09	1.577E-08	2.014E-08	1.543E-03	3.045E-09	6.978E-09
T6TS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.252E-08	3.452E-08	0.000E+00	3.000E-09	7.883E-09	1.088E-08	0.000E+00	0.000E+00	0.000E+00
T7 CAIRP Class 8	Diesel	1.142E-08	1.203E-06	3.862E-08	1.211E-08	2.963E-08	3.600E-08	8.184E-08	1.475E-07	2.835E-08	9.000E-09	2.864E-08	6.599E-08	1.279E-03	5.302E-10	2.015E-07
T7 CAIRP Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.095E-08	7.695E-08	0.000E+00	9.000E-09	1.433E-08	2.333E-08	0.000E+00	0.000E+00	0.000E+00
T7 NNOOS Class 8	Diesel	1.110E-08	1.329E-06	3.756E-08	1.159E-08	2.924E-08	3.600E-08	8.183E-08	1.471E-07	2.797E-08	9.000E-09	2.864E-08	6.561E-08	1.224E-03	5.154E-10	1.929E-07
T7 NOOS Class 8	Diesel	1.145E-08	1.367E-06	3.872E-08	1.159E-08	3.095E-08	3.600E-08	8.185E-08	1.488E-07	2.961E-08	9.000E-09	2.865E-08	6.726E-08	1.223E-03	5.317E-10	1.928E-07
T7 Other Port Class 8	Diesel	1.003E-08	1.236E-06	6.348E-08	1.299E-08	1.642E-08	3.600E-08	9.416E-08	1.466E-07	1.571E-08	9.000E-09	3.296E-08	5.767E-08	1.371E-03	4.660E-10	2.161E-07
T7 Other Port Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.708E-08	8.308E-08	0.000E+00	9.000E-09	1.648E-08	2.548E-08	0.000E+00	0.000E+00	0.000E+00
T7 POAK Class 8	Diesel	1.024E-08	1.286E-06	6.476E-08	1.294E-08	1.713E-08	3.600E-08	9.416E-08	1.473E-07	1.639E-08	9.000E-09	3.296E-08	5.835E-08	1.367E-03	4.754E-10	2.154E-07
T7 POAK Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.708E-08	8.308E-08	0.000E+00	9.000E-09	1.648E-08	2.548E-08	0.000E+00	0.000E+00	0.000E+00
T7 POLA Class 8	Diesel	1.075E-08	1.397E-06	6.996E-08	1.314E-08	1.888E-08	3.600E-08	9.326E-08	1.481E-07	1.806E-08	9.000E-09	3.264E-08	5.970E-08	1.387E-03	4.995E-10	2.186E-07
T7 POLA Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.707E-08	8.307E-08	0.000E+00	9.000E-09	1.647E-08	2.547E-08	0.000E+00	0.000E+00	0.000E+00
T7 POLA Class 8	Natural Gas	1.676E-08	1.733E-07	4.977E-06	0.000E+00	2.524E-09	3.600E-08	9.373E-08	1.323E-07	2.321E-09	9.000E-09	3.280E-08	4.413E-08	1.153E-03	1.173E-06	2.350E-07
T7 Public Class 8	Diesel	2.772E-08	1.874E-06	1.458E-07	1.527E-08	1.002E-08	3.600E-08	1.072E-07	1.532E-07	9.584E-09	9.000E-09	3.752E-08	5.610E-08	1.613E-03	1.287E-09	2.541E-07
T7 Public Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	5.429E-08	9.029E-08	0.000E+00	9.000E-09	1.900E-08	2.800E-08	0.000E+00	0.000E+00	0.000E+00
T7 Public Class 8	Natural Gas	2.443E-08	2.823E-07	8.153E-06	0.000E+00	3.266E-09	3.600E-08	1.063E-07	1.455E-07	3.003E-09	9.000E-09	3.719E-08	4.919E-08	1.460E-03	1.710E-06	2.976E-07
T7 Single Concrete/T	Diesel	8.627E-09	8.078E-07	4.367E-08	1.371E-08	1.371E-08	3.600E-08	8.863E-08	1.383E-07	1.312E-08	9.000E-09	3.102E-08	5.314E-08	1.448E-03	4.007E-10	2.282E-07
T7 Single Concrete/T	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.439E-08	8.039E-08	0.000E+00	9.000E-09	1.554E-08	2.454E-08	0.000E+00	0.000E+00	0.000E+00
T7 Single Concrete/T	Natural Gas	1.525E-08	1.644E-07	4.042E-06	0.000E+00	2.255E-09	3.600E-08	8.865E-08	1.269E-07	2.074E-09	9.000E-09	3.103E-08	4.210E-08	1.124E-03	1.067E-06	2.292E-07
T7 Single Dump Class	Diesel	1.030E-08	1.096E-06	5.536E-08	1.415E-08	1.752E-08	3.600E-08	8.697E-08	1.405E-07	1.676E-08	9.000E-09	3.044E-08	5.620E-08	1.494E-03	4.785E-10	2.354E-07
T7 Single Dump Class	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.437E-08	8.037E-08	0.000E+00	9.000E-09	1.553E-08	2.453E-08	0.000E+00	0.000E+00	0.000E+00
T7 Single Dump Class	Natural Gas	1.523E-08	2.024E-07	4.562E-06	0.000E+00	2.171E-09	3.600E-08	8.706E-08	1.252E-07	1.996E-09	9.000E-09	3.047E-08	4.147E-08	1.153E-03	1.066E-06	2.351E-07
T7 Single Other Class	Diesel	9.574E-09	9.889E-07	4.915E-08	1.394E-08	1.631E-08	3.600E-08	8.745E-08	1.398E-07	1.560E-08	9.000E-09	3.061E-08	5.521E-08	1.472E-03	4.447E-10	2.319E-07
T7 Single Other Class	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.438E-08	8.038E-08	0.000E+00	9.000E-09	1.553E-08	2.453E-08	0.000E+00	0.000E+00	0.000E+00
T7 Single Other Class	Natural Gas	1.524E-08	1.759E-07	4.199E-06	0.000E+00	2.230E-09	3.600E-08	8.751E-08	1.257E-07	2.050E-09	9.000E-09	3.063E-08	4.168E-08	1.134E-03	1.067E-06	2.312E-07
T7 SWCV Class 8	Diesel	2.684E-08	2.131E-06	6.171E-08	3.234E-08	1.687E-08	3.600E-08	2.100E-07	2.629E-07	1.614E-08	9.000E-09	7.350E-08	9.864E-08	3.415E-03	1.247E-09	5.381E-07
T7 SWCV Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	1.050E-07	1.410E-07	0.000E+00	9.000E-09	3.675E-08	4.575E-08	0.000E+00	0.000E+00	0.000E+00
T7 SWCV Class 8	Natural Gas	1.694E-08	3.570E-07	1.017E-05	0.000E+00	1.525E-09	3.600E-08	2.100E-07	2.475E-07	1.403E-09	9.000E-09	7.350E-08	8.390E-08	1.329E-03	5.093E-07	2.708E-07
T7 Tractor Class 8	Diesel	1.024E-08	1.183E-06	4.806E-08	1.210E-08	2.180E-08	3.600E-08	8.577E-08	1.436E-07	2.085E-08	9.000E-09	3.002E-08	5.988E-08	1.278E-03	4.757E-10	2.014E-07
T7 Tractor Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.329E-08	7.929E-08	0.000E+00	9.000E-09	1.515E-08	2.415E-08	0.000E+00	0.000E+00	0.000E+00
T7 Tractor Class 8	Natural Gas	1.458E-08	1.686E-07	3.774E-06	0.000E+00	2.148E-09	3.600E-08	8.572E-08	1.239E-07	1.975E-09	9.000E-09	3.000E-08	4.098E-08	1.078E-03	1.021E-06	2.198E-07
T7 Utility Class 8	Diesel	1.110E-08	1.056E-06	1.011E-07	1.463E-08	7.206E-09	3.600E-08	1.012E-07	1.444E-07	6.894E-09	9.000E-09	3.540E-08	5.130E-08	1.545E-03	5.156E-10	2.434E-07
T7 Utility Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	5.194E-08	8.794E-08	0.000E+00	9.000E-09	1.818E-08	2.718E-08	0.000E+00	0.000E+00	0.000E+00
T7IS	Gasoline	4.409E-07	2.179E-06	3.007E-05	1.788E-08	1.556E-09	2.000E-08	9.639E-08	1.179E-07	1.431E-09	5.000E-09	3.374E-08	4.017E-08	1.808E-03	9.528E-08	1.011E-07
T7IS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.000E-08	4.846E-08	6.846E-08	0.000E+00	5.000E-09	1.696E-08	2.196E-08	0.000E+00	0.000E+00	0.000E+00
UBUS	Diesel	9.483E-08	1.885E-07	1.830E-07	6.266E-09	1.380E-08	1.200E-08	9.100E-08	1.168E-07	1.320E-08	3.000E-09	3.185E-08	4.805E-08	6.612E-04	4.405E-09	1.042E-07
UBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.291E-08	5.500E-08	7.791E-08	0.000E+00	5.727E-09	1.925E-08	2.498E-08	0.000E+00	0.000E+00	0.000E+00
UBUS	Natural Gas	9.483E-08	1.885E-07	1.830E-07	0.000E+00	1.380E-08	1.200E-08	9.100E-08	1.168E-07	1.320E-08	3.000E-09	3.185E-08	4.805E-08	7.982E-04	4.405E-09	1.627E-07
	total															

Operation-Related Annual Vehicle Fuel/Energy Usage Summary

Existing Conditions (Year 2020)

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
Existing Conditions City	86,757,138	3,893,305	22.28	10,681,156	1,468,478	7.27	104,835	20,095	5.22	1,101,163	392,295	2.81
Existing Conditions SOI	9,726,236	436,474	22.28	1,197,451	164,629	7.27	11,753	2,253	5.22	123,450	43,980	2.81
Total	**96,483,374**	**4,329,779**		**11,878,607**	**1,633,107**		**116,588**	**22,347**		**1,224,613**	**436,275**	

Current GP

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
Current GP City	96,772,822	3,084,916	31.37	10,100,413	1,227,908	8.23	106,392	14,470	7.35	13,773,598	3,712,348	3.71
Current GP SOI	19,729,734	628,943	31.37	2,059,240	250,342	8.23	21,691	2,950	7.35	2,808,117	756,862	3.71
Total	**116,502,556**	**3,713,858**		**12,159,653**	**1,478,250**		**128,083**	**17,420**		**16,581,715**	**4,469,210**	

Proposed GP (Year 2045)

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
Proposed GP City	92,994,980	2,964,486	31.37	9,706,110	1,179,973	8.23	102,239	17,288	5.91	13,235,900	3,567,425	3.71
Proposed GP SOI	17,885,725	570,160	31.37	1,866,776	226,944	8.23	19,664	3,325	5.91	2,545,661	686,123	3.71
Total	**110,880,704**	**3,534,645**		**11,572,887**	**1,406,917**		**121,902**	**20,613**		**15,781,561**	**4,253,548**	

Total Net Change

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
Change from Existing Conditions	14,397,330	-795,133	NA	-305,721	-226,191	NA	5,315	-1,734	NA	14,556,948	3,817,272	NA
Change from Current GP	-5,621,852	-179,213	NA	-586,766	-71,333	NA	-6,181	3,193	NA	-800,154	-215,663	NA

Notes

** VMT based on VMT data provided by Fehr & Peers, 2024.*

*** Fuel consumption rates based on data obtained from EMFAC2021 Web Database, Version 1.0.2. https://arb.ca.gov/emfac/emissions-inventory/f7df17ce2153322cf12c7ff31f52997af7bf7717*

****VMT per year based on a conversion of VMT x 347 days per year to account for less travel on weekend, consistent with CARB statewide GHG emissions inventory methodology. California Air Resources Board. 2008, October. Climate Change Proposed Scoping Plan: A Framework for Change.*

Existing Conditions (Year 2020): Annual City VMT

Vehicle type	Fleet percent	Annual VMT
LDA	49.18%	48,512,746
LDT1	3.73%	3,683,952
LDT2	17.35%	17,114,517
MDV	16.69%	16,467,263
LHD1	3.37%	3,326,531
LHD2	0.79%	777,904
MHD	1.63%	1,608,589
HHD	6.44%	6,355,121
OBUS	0.05%	45,850
UBUS	0.08%	75,698
MCY	0.33%	326,192
SBUS	0.11%	106,056
MH	0.10%	103,207
All Other Buses	0.02%	19,106
Motor Coach	0.01%	13,914
PTO	0.11%	107,646
	100%	98,644,293

Existing Conditions

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	97.58%	0.28%	0.00%	2.15%	
LDT1	99.95%	0.01%	0.00%	0.04%	
LDT2	99.63%	0.25%	0.00%	0.12%	
MDV	98.20%	1.61%	0.00%	0.20%	
LHD1	51.05%	48.95%	0.00%	0.00%	
LHD2	26.43%	73.57%	0.00%	0.00%	
MHD	8.28%	90.87%	0.85%	0.00%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.00%	98.93%	1.07%	0.00%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	58.13%	41.22%	0.65%	0.00%	<< OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	26.70%	53.16%	14.42%	5.72%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	29.51%	59.47%	11.02%	0.00%	
MH	72.48%	27.52%	0.00%	0.00%	
All Other Buses	0.00%	97.34%	2.66%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	100.00%	0.00%	0.00%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	47,336,721	27.30	1,734,238	133,676	41.85	3,194	0	0	0	1,042,348	2.84	367,663
LDT1	3,681,965	22.76	161,808	526	24.54	21	0	0	0	1,461	2.64	554
LDT2	17,052,011	21.48	793,754	42,176	30.48	1,384	0	0	0	20,330	3.22	6,306
MDV	16,170,137	17.65	916,106	264,431	23.45	11,277	0	0	0	32,696	3.20	10,227
LHD1	1,698,046	8.80	192,963	1,628,485	15.74	103,440	0	0	0	0	0.00	0
LHD2	205,618	8.00	25,705	572,285	12.86	44,499	0	0	0	0	0.00	0
MHD	133,168	4.44	29,985	1,461,684	8.49	172,073	13,737	7.08	1,940	0	0.00	0
HHD	309	2.79	111	6,287,129	5.78	1,086,852	67,683	4.68	14,470	0	0.00	0
OBUS	26,654	4.56	5,844	18,900	7.18	2,633	296	0	0	0	0.00	0
UBUS	20,214	4.70	4,302	40,239	8.53	4,716	10,917	7.40	1,476	4,329	0.57	7,546
MCY	326,192	38.98	8,367	0	0.00	0	0	0	0	0	0.00	0
SBUS	31,294	9.94	3,148	63,070	8.10	7,788	11,692	5.47	2,136	0	0.00	0
MH	74,808	4.41	16,976	28,399	9.41	3,017	0	0	0	0	0.00	0
All Other Buses	0	0	0	18,597	8.42	2,208	509	7.08	72	0	0.00	0
Motor Coach	0	0	0	13,914	5.52	2,523	0	0	0	0	0.00	0
PTO	0	0	0	107,646	4.71	22,852	0	0	0	0	0.00	0
	86,757,138		**3,893,305**	**10,681,156**		**1,468,478**	**104,835**		**20,095**	**1,101,163**		**392,295**

Existing Conditions (Year 2020): Annual SOI VMT

Vehicle type	Fleet percent	Annual VMT
LDA	49.18%	5,438,704
LDT1	3.73%	413,003
LDT2	17.35%	1,918,687
MDV	16.69%	1,846,125
LHD1	3.37%	372,933
LHD2	0.79%	87,210
MHD	1.63%	180,337
HHD	6.44%	712,465
OBUS	0.05%	5,140
UBUS	0.08%	8,486
MCY	0.33%	36,569
SBUS	0.11%	11,890
MH	0.10%	11,570
All Other Buses	0.02%	2,142
Motor Coach	0.01%	1,560
PTO	0.11%	12,068
	100%	11,058,890

Existing Conditions

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	97.58%	0.28%	0.00%	2.15%	
LDT1	99.95%	0.01%	0.00%	0.04%	
LDT2	99.63%	0.25%	0.00%	0.12%	
MDV	98.20%	1.61%	0.00%	0.20%	
LHD1	51.05%	48.95%	0.00%	0.00%	
LHD2	26.43%	73.57%	0.00%	0.00%	
MHD	8.28%	90.87%	0.85%	0.00%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.00%	98.93%	1.07%	0.00%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	58.13%	41.22%	0.65%	0.00%	<< OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	26.70%	53.16%	14.42%	5.72%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	29.51%	59.47%	11.02%	0.00%	
MH	72.48%	27.52%	0.00%	0.00%	
All Other Buses	0.00%	97.34%	2.66%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	100.00%	0.00%	0.00%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	5,306,861	27.30	194,423	14,986	41.85	358	0	0	0	116,856	2.84	41,218
LDT1	412,781	22.76	18,140	59	24.54	2	0	0	0	164	2.64	62
LDT2	1,911,680	21.48	88,987	4,728	30.48	155	0	0	0	2,279	3.22	707
MDV	1,812,814	17.65	102,704	29,645	23.45	1,264	0	0	0	3,665	3.20	1,147
LHD1	190,366	8.80	21,633	182,567	15.74	11,597	0	0	0	0	0.00	0
LHD2	23,052	8.00	2,882	64,158	12.86	4,989	0	0	0	0	0.00	0
MHD	14,929	4.44	3,362	163,868	8.49	19,291	1,540	7.08	218	0	0.00	0
HHD	35	2.79	12	704,842	5.78	121,846	7,588	4.68	1,622	0	0.00	0
OBUS	2,988	4.56	655	2,119	7.18	295	33	0	0	0	0.00	0
UBUS	2,266	4.70	482	4,511	8.53	529	1,224	7.40	165	485	0.57	846
MCY	36,569	38.98	938	0	0.00	0	0	0	0	0	0.00	0
SBUS	3,508	9.94	353	7,071	8.10	873	1,311	5.47	239	0	0.00	0
MH	8,387	4.41	1,903	3,184	9.41	338	0	0	0	0	0.00	0
All Other Buses	0	0	0	2,085	8.42	248	57	7.08	8	0	0.00	0
Motor Coach	0	0	0	1,560	5.52	283	0	0	0	0	0.00	0
PTO	0	0	0	12,068	4.71	2,562	0	0	0	0	0.00	0
	9,726,236		**436,474**	**1,197,451**		**164,629**	**11,753**		**2,253**	**123,450**		**43,980**

Current GP: Annual City VMT

Vehicle type	Fleet percent	Annual VMT
LDA	48.91%	59,055,504
LDT1	2.60%	3,134,482
LDT2	22.99%	27,759,182
MDV	13.07%	15,777,012
LHD1	2.14%	2,588,393
LHD2	0.51%	615,390
MHD	1.74%	2,097,277
HHD	7.48%	9,035,991
OBUS	0.02%	27,620
UBUS	0.06%	76,510
MCY	0.23%	281,554
SBUS	0.08%	90,681
MH	0.04%	50,854
All Other Buses	0.02%	19,305
Motor Coach	0.01%	12,560
PTO	0.11%	130,908
	100%	120,753,224

Current GP Conditions

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	86.55%	0.05%	0.00%	13.40%	
LDT1	95.82%	0.00%	0.00%	4.17%	
LDT2	95.56%	0.36%	0.00%	4.08%	
MDV	93.26%	1.01%	0.00%	5.73%	
LHD1	34.92%	21.79%	0.00%	43.29%	
LHD2	15.22%	43.37%	0.00%	41.41%	
MHD	3.38%	53.53%	0.78%	42.31%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.00%	85.25%	0.88%	13.87%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	21.70%	51.37%	2.20%	24.74%	<<OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	0.00%	0.05%	0.22%	99.72%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	27.18%	27.00%	8.71%	37.11%	
MH	63.39%	36.61%	0.00%	0.00%	
All Other Buses	0.00%	93.23%	6.77%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	51.24%	0.00%	48.76%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	51,115,246	36.29	1,408,404	29,412	55.43	531	0	0	0	7,910,846	2.69	2,936,557
LDT1	3,003,584	31.47	95,450	35	29.75	1	0	0	0	130,863	2.78	46,997
LDT2	26,527,928	30.39	872,989	99,936	40.17	2,488	0	0	0	1,131,319	2.82	401,108
MDV	14,712,905	25.02	588,125	159,653	30.71	5,198	0	0	0	904,454	2.76	327,687
LHD1	903,933	11.26	80,287	564,020	16.70	33,776	0	0	0	1,120,439	1.53	0
LHD2	93,658	10.01	9,360	266,895	14.23	18,761	0	0	0	254,837	1.56	0
MHD	70,895	5.49	12,910	1,122,665	9.90	113,347	16,443	0	0	887,274	0.93	0
HHD	244	4.74	52	7,702,830	7.46	1,032,039	79,964	5.59	14,296	1,252,953	0.55	0
OBUS	5,993	5.49	1,093	14,189	8.29	1,711	607	0	0	6,832	0.00	0
UBUS	0	0.00	0	42	15.36	3	169	9.83	17	76,299	0.57	0
MCY	281,554	42.36	6,647	0	0.00	0	0	0	0	0	0.00	0
SBUS	24,644	10.71	2,301	24,485	9.01	2,716	7,902	0	0	33,649	0.95	0
MH	32,238	4.42	7,299	18,616	9.33	1,996	0	0	0	0	0.00	0
All Other Buses	0	0	0	17,998	9.65	1,866	1,307	8	156	0	0.00	0
Motor Coach	0	0	0	12,560	6.36	1,975	0	0	0	0	0.00	0
PTO	0	0	0	67,077	5.83	11,499	0	0	0	63,832	0.48	0
	96,772,822		**3,084,916**	**10,100,413**		**1,227,908**	**106,392**		**14,470**	**13,773,598**		**3,712,348**

Current GP: Annual SOI VMT

Vehicle type	Fleet percent	Annual VMT
LDA	48.91%	12,040,048
LDT1	2.60%	639,048
LDT2	22.99%	5,659,454
MDV	13.07%	3,216,567
LHD1	2.14%	527,713
LHD2	0.51%	125,464
MHD	1.74%	427,586
HHD	7.48%	1,842,229
OBUS	0.02%	5,631
UBUS	0.06%	15,599
MCY	0.23%	57,402
SBUS	0.08%	18,488
MH	0.04%	10,368
All Other Buses	0.02%	3,936
Motor Coach	0.01%	2,561
PTO	0.11%	26,689
	100%	24,618,783

Current GP Conditions

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	86.55%	0.05%	0.00%	13.40%	
LDT1	95.82%	0.00%	0.00%	4.17%	
LDT2	95.56%	0.36%	0.00%	4.08%	
MDV	93.26%	1.01%	0.00%	5.73%	
LHD1	34.92%	21.79%	0.00%	43.29%	
LHD2	15.22%	43.37%	0.00%	41.41%	
MHD	3.38%	53.53%	0.78%	42.31%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.00%	85.25%	0.88%	13.87%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	21.70%	51.37%	2.20%	24.74%	<<OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	0.00%	0.05%	0.22%	99.72%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	27.18%	27.00%	8.71%	37.11%	
MH	63.39%	36.61%	0.00%	0.00%	
All Other Buses	0.00%	93.23%	6.77%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	51.24%	0.00%	48.76%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	10,421,213	36.29	287,141	5,996	55.43	108	0	0	0	1,612,838	2.69	598,696
LDT1	612,361	31.47	19,460	7	29.75	0	0	0	0	26,680	2.78	9,582
LDT2	5,408,429	30.39	177,982	20,375	40.17	507	0	0	0	230,650	2.82	81,777
MDV	2,999,620	25.02	119,905	32,550	30.71	1,060	0	0	0	184,397	2.76	66,808
LHD1	184,291	11.26	16,369	114,991	16.70	6,886	0	0	0	228,432	1.53	0
LHD2	19,095	10.01	1,908	54,414	14.23	3,825	0	0	0	51,955	1.56	0
MHD	14,454	5.49	2,632	228,885	9.90	23,109	3,352	0	0	180,895	0.93	0
HHD	50	4.74	11	1,570,428	7.46	210,409	16,303	5.59	2,915	255,448	0.55	0
OBUS	1,222	5.49	223	2,893	8.29	349	124	0	0	1,393	0.00	0
UBUS	0	0.00	0	9	15.36	1	34	9.83	4	15,556	0.57	0
MCY	57,402	42.36	1,355	0	0.00	0	0	0	0	0	0.00	0
SBUS	5,024	10.71	469	4,992	9.01	554	1,611	0	0	6,860	0.95	0
MH	6,573	4.42	1,488	3,795	9.33	407	0	0	0	0	0.00	0
All Other Buses	0	0	0	3,669	9.65	380	266	8	32	0	0.00	0
Motor Coach	0	0	0	2,561	6.36	403	0	0	0	0	0.00	0
PTO	0	0	0	13,675	5.83	2,344	0	0	0	13,014	0.48	0
	19,729,734		**628,943**	**2,059,240**		**250,342**	**21,691**		**2,950**	**2,808,117**		**756,862**

Proposed GP (Year 2045): Annual City VMT

Vehicle type	Fleet percent	Annual VMT
LDA	48.91%	56,750,080
LDT1	2.60%	3,012,117
LDT2	22.99%	26,675,512
MDV	13.07%	15,161,105
LHD1	2.14%	2,487,346
LHD2	0.51%	591,366
MHD	1.74%	2,015,403
HHD	7.48%	8,683,242
OBUS	0.02%	26,542
UBUS	0.06%	73,523
MCY	0.23%	270,562
SBUS	0.08%	87,141
MH	0.04%	48,869
All Other Buses	0.02%	18,552
Motor Coach	0.01%	12,070
PTO	0.11%	125,798
	100%	116,039,229

Proposed Conditions

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	86.55%	0.05%	0.00%	13.40%	
LDT1	95.82%	0.00%	0.00%	4.17%	
LDT2	95.56%	0.36%	0.00%	4.08%	
MDV	93.26%	1.01%	0.00%	5.73%	
LHD1	34.92%	21.79%	0.00%	43.29%	
LHD2	15.22%	43.37%	0.00%	41.41%	
MHD	3.38%	53.53%	0.78%	42.31%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.00%	85.25%	0.88%	13.87%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	21.70%	51.37%	2.20%	24.74%	<< OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	0.00%	0.05%	0.22%	99.72%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	27.18%	27.00%	8.71%	37.11%	
MH	63.39%	36.61%	0.00%	0.00%	
All Other Buses	0.00%	93.23%	6.77%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	51.24%	0.00%	48.76%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	49,119,796	36.29	1,353,423	28,263	55.43	510	0	0	0	7,602,021	2.69	2,821,919
LDT1	2,886,329	31.47	91,723	34	29.75	1	0	0	0	125,755	2.78	45,162
LDT2	25,492,324	30.39	838,909	96,035	40.17	2,391	0	0	0	1,087,154	2.82	385,449
MDV	14,138,539	25.02	565,165	153,421	30.71	4,995	0	0	0	869,145	2.76	314,895
LHD1	868,645	11.26	77,153	542,002	16.70	32,458	0	0	0	1,076,699	1.53	0
LHD2	90,001	10.01	8,994	256,475	14.23	18,028	0	0	0	244,889	1.56	0
MHD	68,128	5.49	12,406	1,078,838	9.90	108,923	15,801	7.41	2,133	852,636	0.93	0
HHD	235	4.74	50	7,402,125	7.46	991,750	76,842	5.59	13,738	1,204,040	0.55	0
OBUS	5,759	5.49	1,050	13,635	8.29	1,644	583	0	0	6,565	0.00	0
UBUS	0	0.00	0	40	15.36	3	162	9.83	17	73,321	0.57	0
MCY	270,562	42.36	6,387	0	0.00	0	0	0	0	0	0.00	0
SBUS	23,682	10.71	2,211	23,530	9.01	2,610	7,594	6.08	1,250	32,336	0.95	0
MH	30,980	4.42	7,014	17,889	9.33	1,918	0	0	0	0	0.00	0
All Other Buses	0	0	0	17,295	9.65	1,793	1,256	8.36	150	0	0.00	0
Motor Coach	0	0	0	12,070	6.36	1,898	0	0	0	0	0.00	0
PTO	0	0	0	64,458	5.83	11,050	0	0	0	61,340	0.48	0
	92,994,980		**2,964,486**	**9,706,110**		**1,179,973**	**102,239**		**17,288**	**13,235,900**		**3,567,425**

Proposed GP (Year 2045): Annual SOI VMT

Vehicle type	Fleet percent	Annual VMT
LDA	48.91%	10,914,743
LDT1	2.60%	579,321
LDT2	22.99%	5,130,501
MDV	13.07%	2,915,935
LHD1	2.14%	478,391
LHD2	0.51%	113,737
MHD	1.74%	387,622
HHD	7.48%	1,670,048
OBUS	0.02%	5,105
UBUS	0.06%	14,141
MCY	0.23%	52,037
SBUS	0.08%	16,760
MH	0.04%	9,399
All Other Buses	0.02%	3,568
Motor Coach	0.01%	2,321
PTO	0.11%	24,195
	100%	22,317,826

Proposed Conditions

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	86.55%	0.05%	0.00%	13.40%	
LDT1	95.82%	0.00%	0.00%	4.17%	
LDT2	95.56%	0.36%	0.00%	4.08%	
MDV	93.26%	1.01%	0.00%	5.73%	
LHD1	34.92%	21.79%	0.00%	43.29%	
LHD2	15.22%	43.37%	0.00%	41.41%	
MHD	3.38%	53.53%	0.78%	42.31%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.00%	85.25%	0.88%	13.87%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	21.70%	51.37%	2.20%	24.74%	<< OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	0.00%	0.05%	0.22%	99.72%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	27.18%	27.00%	8.71%	37.11%	
MH	63.39%	36.61%	0.00%	0.00%	
All Other Buses	0.00%	93.23%	6.77%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	51.24%	0.00%	48.76%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	9,447,211	36.29	260,304	5,436	55.43	98	0	0	0	1,462,097	2.69	542,740
LDT1	555,128	31.47	17,641	6	29.75	0	0	0	0	24,186	2.78	8,686
LDT2	4,902,939	30.39	161,347	18,470	40.17	460	0	0	0	209,092	2.82	74,133
MDV	2,719,265	25.02	108,698	29,507	30.71	961	0	0	0	167,163	2.76	60,564
LHD1	167,066	11.26	14,839	104,243	16.70	6,243	0	0	0	207,082	1.53	0
LHD2	17,310	10.01	1,730	49,328	14.23	3,467	0	0	0	47,099	1.56	0
MHD	13,103	5.49	2,386	207,493	9.90	20,949	3,039	7.41	410	163,988	0.93	0
HHD	45	4.74	10	1,423,651	7.46	190,743	14,779	5.59	2,642	231,573	0.55	0
OBUS	1,108	5.49	202	2,622	8.29	316	112	0	0	1,263	0.00	0
UBUS	0	0.00	0	8	15.36	1	31	9.83	3	14,102	0.57	0
MCY	52,037	42.36	1,228	0	0.00	0	0	0	0	0	0.00	0
SBUS	4,555	10.71	425	4,525	9.01	502	1,461	6.08	240	6,219	0.95	0
MH	5,958	4.42	1,349	3,441	9.33	369	0	0	0	0	0.00	0
All Other Buses	0	0	0	3,326	9.65	345	242	8.36	29	0	0.00	0
Motor Coach	0	0	0	2,321	6.36	365	0	0	0	0	0.00	0
PTO	0	0	0	12,397	5.83	2,125	0	0	0	11,797	0.48	0
	17,885,725		**570,160**	**1,866,776**		**226,944**	**19,664**		**3,325**	**2,545,661**		**686,123**

EMFAC Fuel Usage: Year 2020

Vehicle type	GAS			DSL			NG			ELEC		
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallo	VMT/day	kWh/day	Miles/kWh
All other buses	0	0	0.00	3,293	391	8.42	90	13	7.08	0	0	0.00
LDA	8,380,893	307,044	27.30	23,667	565	41.85	0	0	0.00	184,546	65,094	2.84
LDT1	651,886	28,648	22.76	93	4	24.54	0	0	0.00	259	98	2.64
LDT2	3,019,032	140,533	21.48	7,467	245	30.48	0	0	0.00	3,599	1,116	3.22
LHD1	300,636	34,164	8.80	288,321	18,314	15.74	0	0	0.00	0	0	0.00
LHD2	36,404	4,551	8.00	101,322	7,878	12.86	0	0	0.00	0	0	0.00
MCY	57,752	1,481	38.98	0	0	0.00	0	0	0.00	0	0	0.00
MDV	2,862,898	162,195	17.65	46,817	1,997	23.45	0	0	0.00	5,789	1,811	3.20
MH	13,245	3,006	4.41	5,028	534	9.41	0	0	0.00	0	0	0.00
Motor coach	0	0	0.00	2,464	447	5.52	0	0	0.00	0	0	0.00
OBUS	8,118	1,780	4.56	0	0	0.00	0	0	0.00	0	0	0.00
PTO	0	0	0.00	19,059	4,046	4.71	0	0	0.00	0	0	0.00
SBUS	5,541	557	9.94	11,167	1,379	8.10	2,070	378	5.47	0	0	0.00
T6	23,577	5,309	4.44	258,789	30,465	8.49	2,432	344	7.08	0	0	0.00
T7	55	20	2.79	1,113,126	192,426	5.78	11,983	2,562	4.68	0	0	0.00
UBUS	3,579	762	4.70	7,124	835	8.53	1,933	261	7.40	766	1,336	0.57
Total	**15,363,616**	**690,049**	**22.26**	**1,887,736**	**259,526**	**7.27**	**18,508**	**3,558**	**5.20**	**194,959**	**69,455**	**2.81**

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: San Joaquin (SJV)
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Fuel Consumption	Energy Consumption
San Joaquin (SJV)	2020	All Other Buses	Aggregate	Aggregate	Diesel	66.18104955	3292.574842	3292.574842	0	589.011341	0.390976662	0
San Joaquin (SJV)	2020	All Other Buses	Aggregate	Aggregate	Natural Gas	1.390160007	90.13768064	90.13768064	0	12.3724241	0.012722469	0
San Joaquin (SJV)	2020	LDA	Aggregate	Aggregate	Gasoline	246442.7107	8295815.136	8295815.136	0	1142654.3	303.9626213	0
San Joaquin (SJV)	2020	LDA	Aggregate	Aggregate	Diesel	819.5130711	23667.13191	23667.13191	0	3582.98053	0.565467376	0
San Joaquin (SJV)	2020	LDA	Aggregate	Aggregate	Electricity	3260.426638	111308.4546	0	111308.5	16527.131	0	42974.25025
San Joaquin (SJV)	2020	LDA	Aggregate	Aggregate	Plug-in Hybrid	3755.042479	158315.8786	85078.21371	73237.66	15527.1007	3.081466479	22119.95764
San Joaquin (SJV)	2020	LDT1	Aggregate	Aggregate	Gasoline	24118.1821	651862.2312	651862.2312	0	104367.444	28.6469782	0
San Joaquin (SJV)	2020	LDT1	Aggregate	Aggregate	Diesel	8.874979818	93.14199401	93.14199401	0	27.5171763	0.003795444	0
San Joaquin (SJV)	2020	LDT1	Aggregate	Aggregate	Electricity	11.60602409	236.6860014	0	236.686	49.795899	0	91.38033129
San Joaquin (SJV)	2020	LDT1	Aggregate	Aggregate	Plug-in Hybrid	0.983017431	45.89317962	23.91370881	21.97947	4.06477708	0.00086855	6.638455278
San Joaquin (SJV)	2020	LDT2	Aggregate	Aggregate	Gasoline	92705.57441	3015418.192	3015418.192	0	428686.133	140.4011131	0
San Joaquin (SJV)	2020	LDT2	Aggregate	Aggregate	Diesel	207.0582391	7467.179771	7467.179771	0	978.372669	0.245003458	0
San Joaquin (SJV)	2020	LDT2	Aggregate	Aggregate	Electricity	11.56051784	348.6524167	0	348.6524	59.7858436	0	134.6086087
San Joaquin (SJV)	2020	LDT2	Aggregate	Aggregate	Plug-in Hybrid	150.8040243	6864.746719	3614.012873	3250.734	623.574641	0.131746429	981.818509
San Joaquin (SJV)	2020	LHD1	Aggregate	Aggregate	Gasoline	10571.18983	300636.4845	300636.4845	0	157494.977	34.1637632	0
San Joaquin (SJV)	2020	LHD1	Aggregate	Aggregate	Diesel	9457.33926	288320.7546	288320.7546	0	118961.431	18.31387075	0
San Joaquin (SJV)	2020	LHD2	Aggregate	Aggregate	Gasoline	1243.707556	36404.42735	36404.42735	0	18529.3895	4.550952686	0
San Joaquin (SJV)	2020	LHD2	Aggregate	Aggregate	Diesel	3141.515828	101322.2205	101322.2205	0	39516.3171	7.878463225	0
San Joaquin (SJV)	2020	MCY	Aggregate	Aggregate	Gasoline	12337.6515	57751.87166	57751.87166	0	24675.303	1.481407208	0
San Joaquin (SJV)	2020	MDV	Aggregate	Aggregate	Gasoline	97908.04032	2857015.569	2857015.569	0	444993.488	161.9776684	0
San Joaquin (SJV)	2020	MDV	Aggregate	Aggregate	Diesel	1339.251774	46817.0365	46817.0365	0	6408.07907	1.996637118	0
San Joaquin (SJV)	2020	MDV	Aggregate	Aggregate	Electricity	24.64348188	741.6241629	0	741.6242	127.296211	0	286.3281365
San Joaquin (SJV)	2020	MDV	Aggregate	Aggregate	Plug-in Hybrid	261.1116604	10929.27168	5882.188473	5047.083	1079.69672	0.217481159	1524.369557
San Joaquin (SJV)	2020	MH	Aggregate	Aggregate	Gasoline	1800.613522	13244.6667	13244.6667	0	180.133377	3.005556062	0
San Joaquin (SJV)	2020	MH	Aggregate	Aggregate	Diesel	656.0405472	5028.044712	5028.044712	0	65.6040547	0.534135016	0
San Joaquin (SJV)	2020	Motor Coach	Aggregate	Aggregate	Diesel	17.68336838	2463.513513	2463.513513	0	406.363805	0.44666536	0
San Joaquin (SJV)	2020	OBUS	Aggregate	Aggregate	Gasoline	206.2669719	8117.67533	8117.67533	0	4126.98957	1.779717222	0
San Joaquin (SJV)	2020	PTO	Aggregate	Aggregate	Diesel	0	19058.50139	19058.50139	0	0	4.045835638	0
San Joaquin (SJV)	2020	SBUS	Aggregate	Aggregate	Gasoline	122.6152055	5540.506153	5540.506153	0	490.460822	0.557321882	0
San Joaquin (SJV)	2020	SBUS	Aggregate	Aggregate	Diesel	482.4361561	11166.50176	11166.50176	0	6985.67554	1.378906338	0
San Joaquin (SJV)	2020	SBUS	Aggregate	Aggregate	Natural Gas	80.37339732	2069.969601	2069.969601	0	1163.80679	0.378190899	0
San Joaquin (SJV)	2020	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	9.842595435	652.1085755	652.1085755	0	226.182843	0.073790079	0
San Joaquin (SJV)	2020	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	13.23926683	894.5757012	894.5757012	0	304.238352	0.100866887	0
San Joaquin (SJV)	2020	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	36.97276219	2337.551901	2337.551901	0	849.634075	0.26220253	0
San Joaquin (SJV)	2020	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	69.45735912	14662.30705	14662.30705	0	1596.13011	1.535634095	0
San Joaquin (SJV)	2020	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	238.4834953	7879.969684	7879.969684	0	3403.15948	0.981800441	0
San Joaquin (SJV)	2020	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	151.2340272	5125.533846	5125.533846	0	2158.10957	0.645185644	0
San Joaquin (SJV)	2020	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	665.4468163	22243.78272	22243.78272	0	9495.92607	2.783308816	0
San Joaquin (SJV)	2020	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	120.4560988	6407.526465	6407.526465	0	1718.90853	0.79755008	0
San Joaquin (SJV)	2020	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	5.1048142	274.1779188	274.1779188	0	72.8456986	0.041869195	0
San Joaquin (SJV)	2020	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	488.8469211	17513.01464	17513.01464	0	5651.07041	2.082121126	0
San Joaquin (SJV)	2020	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	1128.314518	49445.12891	49445.12891	0	13043.3158	5.829719618	0
San Joaquin (SJV)	2020	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	936.1811839	36724.75914	36724.75914	0	10822.2545	4.31535475	0
San Joaquin (SJV)	2020	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	548.8430813	24499.26697	24499.26697	0	6344.62602	2.844557799	0
San Joaquin (SJV)	2020	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	8.220875982	533.3802157	533.3802157	0	95.0333264	0.071086369	0
San Joaquin (SJV)	2020	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	11.98344458	486.2187637	486.2187637	0	138.528619	0.057003731	0
San Joaquin (SJV)	2020	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	683.8369574	41207.47569	41207.47569	0	7905.15523	4.652998786	0
San Joaquin (SJV)	2020	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	9.21198394	756.4601315	756.4601315	0	106.490534	0.09923668	0
San Joaquin (SJV)	2020	T6 OOS Class 4	Aggregate	Aggregate	Diesel	5.6636459	373.3623446	373.3623446	0	130.150583	0.042230077	0
San Joaquin (SJV)	2020	T6 OOS Class 5	Aggregate	Aggregate	Diesel	7.600898609	512.1859973	512.1859973	0	174.66865	0.057737114	0
San Joaquin (SJV)	2020	T6 OOS Class 6	Aggregate	Aggregate	Diesel	21.26342633	1338.356665	1338.356665	0	488.633537	0.150090488	0
San Joaquin (SJV)	2020	T6 OOS Class 7	Aggregate	Aggregate	Diesel	39.15357735	9731.517186	9731.517186	0	899.749208	1.019156079	0
San Joaquin (SJV)	2020	T6 Public Class 4	Aggregate	Aggregate	Diesel	33.02458326	1049.301221	1049.301221	0	169.416112	0.145049069	0
San Joaquin (SJV)	2020	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	0.374739948	16.01986208	16.01986208	0	1.92241593	0.002522665	0
San Joaquin (SJV)	2020	T6 Public Class 5	Aggregate	Aggregate	Diesel	72.63857859	2715.261079	2715.261079	0	372.635908	0.36025373	0
San Joaquin (SJV)	2020	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	6.338218434	269.59258	269.59258	0	32.5150606	0.040417935	0
San Joaquin (SJV)	2020	T6 Public Class 6	Aggregate	Aggregate	Diesel	129.788754	4397.151443	4397.151443	0	665.816308	0.589027024	0
San Joaquin (SJV)	2020	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	3.901658806	159.7417986	159.7417986	0	20.0155097	0.025266534	0
San Joaquin (SJV)	2020	T6 Public Class 7	Aggregate	Aggregate	Diesel	163.0924879	6685.177564	6685.177564	0	836.664463	0.915827134	0
San Joaquin (SJV)	2020	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	7.172724681	417.7636468	417.7636468	0	36.7960776	0.062413789	0
San Joaquin (SJV)	2020	T6 Utility Class 5	Aggregate	Aggregate	Diesel	32.00757898	1313.745781	1313.745781	0	409.697011	0.153387951	0
San Joaquin (SJV)	2020	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.082706743	3.348959485	3.348959485	0	1.05864631	0.000468172	0
San Joaquin (SJV)	2020	T6 Utility Class 6	Aggregate	Aggregate	Diesel	6.215117464	247.781898	247.781898	0	79.5535035	0.029549521	0
San Joaquin (SJV)	2020	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.027784434	1.12234645	1.12234645	0	0.35564076	0.000156882	0
San Joaquin (SJV)	2020	T6 Utility Class 7	Aggregate	Aggregate	Diesel	7.253884136	345.7450981	345.7450981	0	92.8497169	0.040854591	0
San Joaquin (SJV)	2020	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.011997372	0.563385971	0.563385971	0	0.15356636	7.78171E-05	0
San Joaquin (SJV)	2020	T6TS	Aggregate	Aggregate	Gasoline	643.5474426	23577.18373	23577.18373	0	12876.0972	5.308731091	0
San Joaquin (SJV)	2020	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1378.810428	290330.1419	290330.1419	0	31685.0636	49.27993759	0
San Joaquin (SJV)	2020	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	1273.032112	343259.7362	343259.7362	0	29254.2779	58.337881	0
San Joaquin (SJV)	2020	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	514.8257757	124700.1649	124700.1649	0	11830.6963	21.29269009	0
San Joaquin (SJV)	2020	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	28.55498038	4759.898155	4759.898155	0	467.159479	0.829023213	0
San Joaquin (SJV)	2020	T7 POAK Class 8	Aggregate	Aggregate	Diesel	126.4532097	12221.92503	12221.92503	0	2068.77451	2.179180929	0
San Joaquin (SJV)	2020	T7 POLA Class 8	Aggregate	Aggregate	Diesel	121.1043294	15960.25438	15960.25438	0	1981.26683	2.820246697	0
San Joaquin (SJV)	2020	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	1.277777278	168.7433303	168.7433303	0	20.9044363	0.034882157	0

San Joaquin (SJV)	2020 T7 Public Class 8	Aggregate	Aggregate	Diesel	389.4012276	16144.32196	16144.32196	0	1997.6283	3.244864658	0
San Joaquin (SJV)	2020 T7 Public Class 8	Aggregate	Aggregate	Natural Gas	19.65579094	1021.489406	1021.489406	0	100.834208	0.230772978	0
San Joaquin (SJV)	2020 T7 Single Concrete/Transit	Aggregate	Aggregate	Diesel	117.3078232	8612.393552	8612.393552	0	1105.03969	1.498533219	0
San Joaquin (SJV)	2020 T7 Single Concrete/Transit	Aggregate	Aggregate	Natural Gas	2.169541775	160.5345439	160.5345439	0	20.4370835	0.029238874	0
San Joaquin (SJV)	2020 T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	468.9969103	30628.30215	30628.30215	0	4417.95089	5.299719158	0
San Joaquin (SJV)	2020 T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	14.93259129	1035.355833	1035.355833	0	140.66501	0.194983261	0
San Joaquin (SJV)	2020 T7 Single Other Class 8	Aggregate	Aggregate	Diesel	886.327474	53794.86202	53794.86202	0	8349.2048	9.364124246	0
San Joaquin (SJV)	2020 T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	27.41138381	1750.974392	1750.974392	0	258.215236	0.331098497	0
San Joaquin (SJV)	2020 T7 SWCV Class 8	Aggregate	Aggregate	Diesel	182.6988262	11841.68418	11841.68418	0	840.4146	4.841583388	0
San Joaquin (SJV)	2020 T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	69.84055117	4517.74149	4517.74149	0	321.266535	1.114692998	0
San Joaquin (SJV)	2020 T7 Tractor Class 8	Aggregate	Aggregate	Diesel	2260.572548	199832.7112	199832.7112	0	32846.1191	33.25236319	0
San Joaquin (SJV)	2020 T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	35.95842819	3328.382341	3328.382341	0	522.475962	0.626255283	0
San Joaquin (SJV)	2020 T7 Utility Class 8	Aggregate	Aggregate	Diesel	20.95399988	1039.994296	1039.994296	0	268.211198	0.185360698	0
San Joaquin (SJV)	2020 T7IS	Aggregate	Aggregate	Gasoline	3.888482091	54.75296394	54.75296394	0	77.8007497	0.019612736	0
San Joaquin (SJV)	2020 UBUS	Aggregate	Aggregate	Gasoline	47.501852	3578.820602	3578.820602	0	190.007408	0.761725559	0
San Joaquin (SJV)	2020 UBUS	Aggregate	Aggregate	Diesel	104.4255312	7124.181273	7124.181273	0	417.702125	0.83503459	0
San Joaquin (SJV)	2020 UBUS	Aggregate	Aggregate	Electricity	17.15976006	766.360054	0	766.3601	68.6390403	0	1335.952657
San Joaquin (SJV)	2020 UBUS	Aggregate	Aggregate	Natural Gas	30.3590352	1932.919152	1932.919152	0	121.436141	0.261351467	0

EMFAC Fuel Usage: Year 2045

Vehicle type	GAS			DSL			NG			ELEC		
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	kWh/day	Miles/kWh
All other buses	0	0	0.00	4,022	417	9.65	292	35	8.36	0	0	0.00
LDA	11,421,463	314,701	36.29	6,572	119	55.43	0	0	0.00	1,767,642	656,160	2.69
LDT1	671,137	21,328	31.47	8	0	29.75	0	0	0.00	29,241	10,501	2.78
LDT2	5,927,542	195,065	30.39	22,330	556	40.17	0	0	0.00	252,788	89,626	2.82
LHD1	201,980	17,940	11.26	126,028	7,547	16.70	0	0	0.00	250,357	163,242	1.53
LHD2	20,927	2,091	10.01	59,636	4,192	14.23	0	0	0.00	56,942	36,448	1.56
MCY	62,912	1,485	42.36	0	0	0.00	0	0	0.00	0	0	0.00
MDV	3,287,530	131,414	25.02	35,674	1,161	30.71	0	0	0.00	202,096	73,220	2.76
MH	7,203	1,631	4.42	4,160	446	9.33	0	0	0.00	0	0	0.00
Motor coach	0	0	0.00	2,807	441	6.36	0	0	0.00	0	0	0.00
OBUS	2,884	526	5.49	0	0	0.00	0	0	0.00	3,288	3,647	0.90
PTO	0	0	0.00	14,988	2,569	5.83	0	0	0.00	14,263	29,546	0.48
SBUS	5,507	514	10.71	5,471	607	9.01	1,766	291	6.08	7,519	7,921	0.95
T6	15,841	2,885	5.49	250,854	25,327	9.90	3,674	496	7.41	198,257	213,827	0.93
T7	55	12	4.74	1,721,161	230,604	7.46	17,868	3,194	5.59	279,967	512,172	0.55
UBUS	0	0	0.00	9	1	15.36	38	4	9.83	17,049	29,720	0.57
Total	**21,624,980**	**689,592**	**31.36**	**2,253,720**	**273,988**	**8.23**	**23,637**	**4,020**	**5.88**	**3,079,407**	**1,826,030**	**1.69**

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: San Joaquin (SJV)
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Fuel Consumption	Energy Consumption
San Joaquin (SJV)	2045	All Other Buses	Aggregate	Aggregate	Diesel	90.01574759	4021.593978	4021.593978	0	801.140154	0.416919291	0
San Joaquin (SJV)	2045	All Other Buses	Aggregate	Aggregate	Natural Gas	6.934194675	292.0523363	292.0523363	0	61.7143326	0.034919599	0
San Joaquin (SJV)	2045	LDA	Aggregate	Aggregate	Gasoline	284163.5889	11205265.18	11205265.18	0	1311605.23	306.6757841	0
San Joaquin (SJV)	2045	LDA	Aggregate	Aggregate	Diesel	186.1699025	6571.897065	6571.897065	0	825.737372	0.118572148	0
San Joaquin (SJV)	2045	LDA	Aggregate	Aggregate	Electricity	38440.91519	1454794.484	0	1454794.484	179675.706	0	561670.7415
San Joaquin (SJV)	2045	LDA	Aggregate	Aggregate	Plug-in Hybrid	13330.29391	529045.104	216197.9339	312847.1702	55120.7653	8.025620016	94489.16972
San Joaquin (SJV)	2045	LDT1	Aggregate	Aggregate	Gasoline	18476.52597	664697.1318	664697.1318	0	83146.4483	21.08714992	0
San Joaquin (SJV)	2045	LDT1	Aggregate	Aggregate	Diesel	0.204345879	7.808645265	7.808645265	0	0.94441433	0.000262447	0
San Joaquin (SJV)	2045	LDT1	Aggregate	Aggregate	Electricity	516.9262809	19864.37472	0	19864.37472	2429.62886	0	7669.288138
San Joaquin (SJV)	2045	LDT1	Aggregate	Aggregate	Plug-in Hybrid	398.0286165	15816.10032	6439.688765	9376.411556	1645.84833	0.24060295	2831.955752
San Joaquin (SJV)	2045	LDT2	Aggregate	Aggregate	Gasoline	155208.7739	5862178.062	5862178.062	0	712147.546	192.6140197	0
San Joaquin (SJV)	2045	LDT2	Aggregate	Aggregate	Diesel	583.7786088	22330.20423	22330.20423	0	2695.20115	0.555876977	0
San Joaquin (SJV)	2045	LDT2	Aggregate	Aggregate	Electricity	5967.609345	157950.2941	0	157950.2941	28002.4345	0	60981.84986
San Joaquin (SJV)	2045	LDT2	Aggregate	Aggregate	Plug-in Hybrid	4129.745056	160201.1909	65363.63106	94837.55988	17076.4958	2.451383583	28643.7697
San Joaquin (SJV)	2045	LHD1	Aggregate	Aggregate	Gasoline	6060.060666	201979.5825	201979.5825	0	90285.8744	17.93986184	0
San Joaquin (SJV)	2045	LHD1	Aggregate	Aggregate	Diesel	4011.71092	126027.738	126027.738	0	50462.2766	7.547163773	0
San Joaquin (SJV)	2045	LHD1	Aggregate	Aggregate	Electricity	5885.377939	250356.9131	0	250356.9131	82815.1903	0	163241.988
San Joaquin (SJV)	2045	LHD2	Aggregate	Aggregate	Gasoline	637.0754004	20927.37878	20927.37878	0	9491.47422	2.091357565	0
San Joaquin (SJV)	2045	LHD2	Aggregate	Aggregate	Diesel	1982.36395	59636.33163	59636.33163	0	24935.6447	4.192029889	0
San Joaquin (SJV)	2045	LHD2	Aggregate	Aggregate	Electricity	1371.240338	56942.21219	0	56942.21219	18148.052	0	36448.31911
San Joaquin (SJV)	2045	MCY	Aggregate	Aggregate	Gasoline	12065.94179	62911.85762	62911.85762	0	24131.8836	1.485226616	0
San Joaquin (SJV)	2045	MDV	Aggregate	Aggregate	Gasoline	92976.72327	3248084.094	3248084.094	0	420724.352	129.9110395	0
San Joaquin (SJV)	2045	MDV	Aggregate	Aggregate	Diesel	1043.328588	35673.82668	35673.82668	0	4689.13178	1.16146528	0
San Joaquin (SJV)	2045	MDV	Aggregate	Aggregate	Electricity	5540.271825	144922.5506	0	144922.5506	25889.7034	0	55952.06565
San Joaquin (SJV)	2045	MDV	Aggregate	Aggregate	Plug-in Hybrid	2639.823095	96619.25906	39445.83187	57173.42719	10915.6685	1.502649874	17268.07905
San Joaquin (SJV)	2045	MH	Aggregate	Aggregate	Gasoline	700.789924	7203.465142	7203.465142	0	70.107024	1.630882473	0
San Joaquin (SJV)	2045	MH	Aggregate	Aggregate	Diesel	470.0726641	4159.633001	4159.633001	0	47.0072664	0.446047461	0
San Joaquin (SJV)	2045	Motor Coach	Aggregate	Aggregate	Diesel	22.09790939	2806.516253	2806.516253	0	507.809958	0.441397196	0
San Joaquin (SJV)	2045	OBUS	Aggregate	Aggregate	Gasoline	83.50390869	2883.856942	2883.856942	0	1670.74621	0.5257584	0
San Joaquin (SJV)	2045	OBUS	Aggregate	Aggregate	Electricity	47.26096898	3287.732001	0	3287.732001	945.597467	0	3647.029125
San Joaquin (SJV)	2045	PTO	Aggregate	Aggregate	Diesel	0	14987.95646	14987.95646	0	0	2.569430827	0
San Joaquin (SJV)	2045	PTO	Aggregate	Aggregate	Electricity	0	14262.86872	0	14262.86872	0	0	29545.80025
San Joaquin (SJV)	2045	SBUS	Aggregate	Aggregate	Gasoline	103.4658376	5506.600511	5506.600511	0	413.863351	0.514158522	0
San Joaquin (SJV)	2045	SBUS	Aggregate	Aggregate	Diesel	261.1405716	5471.144293	5471.144293	0	3781.31548	0.606987004	0
San Joaquin (SJV)	2045	SBUS	Aggregate	Aggregate	Electricity	266.5477402	7518.819349	0	7518.819349	3560.45086	0	7920.742274
San Joaquin (SJV)	2045	SBUS	Aggregate	Aggregate	Natural Gas	86.03096104	1765.758408	1765.758408	0	1245.72832	0.290547068	0
San Joaquin (SJV)	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	6.404474862	458.0926426	458.0926426	0	147.174832	0.046125026	0
San Joaquin (SJV)	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	8.429431439	644.7901239	0	644.7901239	193.708334	0	700.424888
San Joaquin (SJV)	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	7.877339293	629.5453979	629.5453979	0	181.021257	0.063365981	0
San Joaquin (SJV)	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	10.32517505	883.4114337	0	883.4114337	237.272523	0	959.6352853
San Joaquin (SJV)	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	35.68111181	1636.971933	1636.971933	0	819.951949	0.165304481	0
San Joaquin (SJV)	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	47.34437539	2316.427553	0	2316.427553	1087.97375	0	2516.297085
San Joaquin (SJV)	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	93.12965504	18838.01775	18838.01775	0	2140.11947	1.666852128	0
San Joaquin (SJV)	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	28.31065835	5959.702089	0	5959.702089	650.578929	0	6473.926186
San Joaquin (SJV)	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	195.1419891	6414.797059	6414.797059	0	2784.67618	0.695451006	0
San Joaquin (SJV)	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	194.9912421	6912.251675	0	6912.251675	2782.52503	0	7384.213853
San Joaquin (SJV)	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	127.1243565	4178.250846	4178.250846	0	1814.06457	0.453485241	0
San Joaquin (SJV)	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	126.5708365	4490.340797	0	4490.340797	1806.16584	0	4796.937131
San Joaquin (SJV)	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	551.5097973	18126.52631	18126.52631	0	7870.04481	1.96595881	0
San Joaquin (SJV)	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	549.7156925	19493.41236	0	19493.41236	7844.44293	0	20824.4046
San Joaquin (SJV)	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	136.2745612	6891.047856	6891.047856	0	1944.63799	0.755943413	0
San Joaquin (SJV)	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	77.294205	4166.315837	0	4166.315837	1102.98831	0	4450.788045
San Joaquin (SJV)	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	4.929095787	243.111247	243.111247	0	70.3381969	0.035735772	0
San Joaquin (SJV)	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	358.6029844	13847.88977	13847.88977	0	4145.4505	1.450110501	0
San Joaquin (SJV)	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	357.3889688	15771.10737	0	15771.10737	4131.41648	0	16718.65264
San Joaquin (SJV)	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	1013.009098	39106.6677	39106.6677	0	11710.3852	4.097036526	0
San Joaquin (SJV)	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	1007.293381	44517.72034	0	44517.72034	11644.3115	0	47192.39335
San Joaquin (SJV)	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	753.5299246	29068.3057	29068.3057	0	8710.80593	3.043701874	0
San Joaquin (SJV)	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	748.3971845	33042.67624	0	33042.67624	8651.47145	0	35027.91613
San Joaquin (SJV)	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	605.3543175	23847.92067	23847.92067	0	6997.89591	2.521809146	0
San Joaquin (SJV)	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	327.103959	17900.09223	0	17900.09223	3781.32177	0	18975.54922
San Joaquin (SJV)	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	15.03747371	588.6105091	588.6105091	0	173.833196	0.076612575	0
San Joaquin (SJV)	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	8.455328265	376.3396623	376.3396623	0	97.7435947	0.039169185	0
San Joaquin (SJV)	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	8.400577958	445.9809073	0	445.9809073	97.1106812	0	472.7759248
San Joaquin (SJV)	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	977.3743347	56330.56661	56330.56661	0	11298.4473	5.384465378	0
San Joaquin (SJV)	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	186.6828842	13175.99713	0	13175.99713	2158.05414	0	13967.62535
San Joaquin (SJV)	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	25.92832742	1465.20902	1465.20902	0	299.731465	0.180586246	0
San Joaquin (SJV)	2045	T6 OOS Class 4	Aggregate	Aggregate	Diesel	8.636824926	631.4514346	631.4514346	0	198.474237	0.059649565	0
San Joaquin (SJV)	2045	T6 OOS Class 5	Aggregate	Aggregate	Diesel	10.6236956	866.2378182	866.2378182	0	244.132525	0.081828082	0
San Joaquin (SJV)	2045	T6 OOS Class 6	Aggregate	Aggregate	Diesel	48.09769264	2263.504202	2263.504202	0	1105.28498	0.214228359	0
San Joaquin (SJV)	2045	T6 OOS Class 7	Aggregate	Aggregate	Diesel	59.25299376	16458.4902	16458.4902	0	1361.6338	1.391734832	0
San Joaquin (SJV)	2045	T6 Public Class 4	Aggregate	Aggregate	Diesel	18.70690326	640.8289429	640.8289429	0	95.9664137	0.073961567	0
San Joaquin (SJV)	2045	T6 Public Class 4	Aggregate	Aggregate	Electricity	15.93502517	632.3211572	0	632.3211572	81.7466791	0	746.7084069
San Joaquin (SJV)	2045	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	2.462535375	85.35090518	85.35090518	0	12.6328065	0.012713373	0

San Joaquin (SJV)	2045	T6 Public Class 5	Aggregate	Aggregate	Diesel	52.30086829	1790.894675	1790.894675	0	268.303454	0.20746716	0
San Joaquin (SJV)	2045	T6 Public Class 5	Aggregate	Aggregate	Electricity	44.40640227	1758.848749	0	1758.848749	227.804844	0	2077.025467
San Joaquin (SJV)	2045	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	7.522140382	256.5519392	256.5519392	0	38.5885802	0.03837438	0
San Joaquin (SJV)	2045	T6 Public Class 6	Aggregate	Aggregate	Diesel	80.78559891	2760.717635	2760.717635	0	414.430122	0.318326647	0
San Joaquin (SJV)	2045	T6 Public Class 6	Aggregate	Aggregate	Electricity	67.99466443	2680.478197	0	2680.478197	348.812629	0	3165.378196
San Joaquin (SJV)	2045	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	10.71131526	369.7696611	369.7696611	0	54.9490473	0.055319349	0
San Joaquin (SJV)	2045	T6 Public Class 7	Aggregate	Aggregate	Diesel	112.4969846	4691.568428	4691.568428	0	577.109531	0.527451777	0
San Joaquin (SJV)	2045	T6 Public Class 7	Aggregate	Aggregate	Electricity	76.41976856	3702.919283	0	3702.919283	392.033413	0	4372.779445
San Joaquin (SJV)	2045	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	15.91905557	663.2066617	663.2066617	0	81.6647551	0.096456155	0
San Joaquin (SJV)	2045	T6 Utility Class 5	Aggregate	Aggregate	Diesel	17.38646287	690.4127416	690.4127416	0	222.546725	0.071564117	0
San Joaquin (SJV)	2045	T6 Utility Class 5	Aggregate	Aggregate	Electricity	23.9424648	987.5923793	0	987.5923793	306.463549	0	1106.166066
San Joaquin (SJV)	2045	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.039247095	1.558493773	1.558493773	0	0.50236281	0.000199213	0
San Joaquin (SJV)	2045	T6 Utility Class 6	Aggregate	Aggregate	Diesel	3.287737729	130.5196305	130.5196305	0	42.0830429	0.013529623	0
San Joaquin (SJV)	2045	T6 Utility Class 6	Aggregate	Aggregate	Electricity	4.523475325	186.5892672	0	186.5892672	57.9004842	0	208.9918068
San Joaquin (SJV)	2045	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.00742153	0.294626705	0.294626705	0	0.09499558	3.76619E-05	0
San Joaquin (SJV)	2045	T6 Utility Class 7	Aggregate	Aggregate	Diesel	3.648511545	178.761938	178.761938	0	46.7009478	0.018423501	0
San Joaquin (SJV)	2045	T6 Utility Class 7	Aggregate	Aggregate	Electricity	5.027526112	262.4482725	0	262.4482725	64.3523342	0	293.9587013
San Joaquin (SJV)	2045	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.008235918	0.403525819	0.403525819	0	0.10541975	5.07277E-05	0
San Joaquin (SJV)	2045	T6TS	Aggregate	Aggregate	Gasoline	312.6928557	15841.21305	15841.21305	0	6256.35866	2.884603143	0
San Joaquin (SJV)	2045	T6TS	Aggregate	Aggregate	Electricity	268.7829222	18325.75935	0	18325.75935	5377.80871	0	21393.98468
San Joaquin (SJV)	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1988.251415	414888.4028	414888.4028	0	45690.0175	56.17205699	0
San Joaquin (SJV)	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	551.4072977	119399.2483	0	119399.2483	12671.3397	0	218014.201
San Joaquin (SJV)	2045	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	2201.81077	631692.7239	631692.7239	0	50597.6115	81.32832743	0
San Joaquin (SJV)	2045	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	947.5760064	229482.7459	229482.7459	0	21775.2966	29.87558114	0
San Joaquin (SJV)	2045	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	28.24107962	6824.346693	6824.346693	0	462.024063	0.939738534	0
San Joaquin (SJV)	2045	T7 Other Port Class 8	Aggregate	Aggregate	Electricity	6.502486806	1725.684469	0	1725.684469	106.380684	0	3140.689194
San Joaquin (SJV)	2045	T7 POAK Class 8	Aggregate	Aggregate	Diesel	143.0791161	16605.34395	16605.34395	0	2340.77434	2.326984399	0
San Joaquin (SJV)	2045	T7 POAK Class 8	Aggregate	Aggregate	Electricity	33.10018728	3797.530847	0	3797.530847	541.519064	0	6911.381723
San Joaquin (SJV)	2045	T7 POLA Class 8	Aggregate	Aggregate	Diesel	132.9733094	24801.82805	24801.82805	0	2175.44334	3.474847213	0
San Joaquin (SJV)	2045	T7 POLA Class 8	Aggregate	Aggregate	Electricity	23.54634687	4340.369178	0	4340.369178	385.218235	0	7899.329701
San Joaquin (SJV)	2045	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	0.619107604	115.4375752	115.4375752	0	10.1286004	0.018199208	0
San Joaquin (SJV)	2045	T7 Public Class 8	Aggregate	Aggregate	Diesel	286.6534808	11530.55094	11530.55094	0	1470.53236	1.903892925	0
San Joaquin (SJV)	2045	T7 Public Class 8	Aggregate	Aggregate	Electricity	186.7200382	8904.893536	0	8904.893536	957.873796	0	17476.58877
San Joaquin (SJV)	2045	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	36.00196037	1454.45555	1454.45555	0	184.690057	0.296871889	0
San Joaquin (SJV)	2045	T7 Single Concrete/Transit M	Aggregate	Aggregate	Diesel	62.28810911	4086.218503	4086.218503	0	586.753988	0.605284879	0
San Joaquin (SJV)	2045	T7 Single Concrete/Transit M	Aggregate	Aggregate	Electricity	77.32974625	5548.378256	0	5548.378256	728.44621	0	10115.54897
San Joaquin (SJV)	2045	T7 Single Concrete/Transit M	Aggregate	Aggregate	Natural Gas	2.260492056	148.6343476	148.6343476	0	21.2938352	0.023829389	0
San Joaquin (SJV)	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	383.9041568	18525.28543	18525.28543	0	3616.37716	2.873237903	0
San Joaquin (SJV)	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	250.8657711	16118.50833	0	16118.50833	2363.15556	0	29386.52574
San Joaquin (SJV)	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	13.71986925	666.2965973	666.2965973	0	129.241168	0.113537414	0
San Joaquin (SJV)	2045	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	1436.602917	50239.4086	50239.4086	0	13532.7995	7.816477431	0
San Joaquin (SJV)	2045	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	1127.139298	50163.77122	0	50163.77122	10617.6522	0	91456.28887
San Joaquin (SJV)	2045	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	51.696051	1816.501099	1816.501099	0	486.9768	0.320774221	0
San Joaquin (SJV)	2045	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	56.67954721	3677.28592	3677.28592	0	260.725917	1.253903748	0
San Joaquin (SJV)	2045	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	129.0963138	8353.720484	0	8353.720484	593.843044	0	15542.52054
San Joaquin (SJV)	2045	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	136.2729951	8830.587883	8830.587883	0	626.855777	1.604686044	0
San Joaquin (SJV)	2045	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	4751.621816	308062.1188	308062.1188	0	69041.065	41.91832037	0
San Joaquin (SJV)	2045	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	844.1745437	60974.75719	0	60974.75719	12265.8561	0	111017.338
San Joaquin (SJV)	2045	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	74.72065866	4835.649772	4835.649772	0	1085.69117	0.816576817	0
San Joaquin (SJV)	2045	T7 Utility Class 8	Aggregate	Aggregate	Diesel	18.09397226	745.0981956	745.0981956	0	231.602845	0.115714845	0
San Joaquin (SJV)	2045	T7 Utility Class 8	Aggregate	Aggregate	Electricity	12.11143746	581.1060061	0	581.1060061	155.0264	0	1094.105391
San Joaquin (SJV)	2045	T7IS	Aggregate	Aggregate	Gasoline	0.435547885	54.58055567	54.58055567	0	8.71444208	0.011516528	0
San Joaquin (SJV)	2045	T7IS	Aggregate	Aggregate	Electricity	0.354983697	58.60684798	0	58.60684798	7.1025138	0	117.7672216
San Joaquin (SJV)	2045	UBUS	Aggregate	Aggregate	Diesel	0.259560155	9.367184653	9.367184653	0	1.03824062	0.000609917	0
San Joaquin (SJV)	2045	UBUS	Aggregate	Aggregate	Electricity	253.0292168	17048.70965	0	17048.70965	1012.11687	0	29720.06283
San Joaquin (SJV)	2045	UBUS	Aggregate	Aggregate	Natural Gas	1.045656623	37.73637246	37.73637246	0	4.18262649	0.00383775	0

We Can Model Regional Emissions, But Are the Results Meaningful for CEQA?

Authors: AEP Climate Change Committee (Michael Hendrix, Dave Mitchell, Haseeb Qureshi, Jennifer Reed, Brian Schuster, Nicole Vermilion, and Rich Walters)

On December 24, 2018, the California Supreme Court, *Sierra Club v. County of Fresno (Friant Ranch, L.P.] (2018) 6 Cal.5th 502, Case No. S219783 (Friant Ranch*), held that simply identifying that a project exceeds an emissions threshold is not sufficient to identify a project's significant effect on the environment relative to the health effects of project emissions. The Court found that an EIR should make a reasonable effort to substantively connect a project's criteria pollutant emissions to likely health consequences, or explain why it is not currently feasible to provide such an analysis. In 2019, there were several CEQA documents that included health effects modeling to provide additional analysis for projects with criteria air pollutant emissions that exceed a significance threshold. While it is technically possible to conduct this modeling, we argue that this additional layer of quantitative analysis may not always provide decision-makers and the public with additional meaningful information. It is the air districts that are best suited to provide frameworks for how to identify health effects of regional criteria pollutant emissions under CEQA.

Introduction

Significance thresholds for regional criteria pollutants used by California air districts and lead agencies represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable national or state ambient air quality standard (AAQS). By analyzing the project's emissions against these thresholds, the CEQA document assesses whether these emissions directly contribute to any regional or local exceedances of the applicable AAQS and exposure levels. The basis of the ruling in Friant Ranch was that the EIR did not provide a meaningful analysis of the adverse health effects that would be associated with the project's criteria pollutant emissions, which were identified as being far above the relevant thresholds. The discussion of the adverse health effects in the EIR was general in nature and did not connect the levels of the pollutants that would be emitted by the project to adverse health effects.

The process of correlating project-related criteria pollutant emissions to health-based consequences is called a health impact assessment (HIA). An HIA involves two steps: 1) running a regional photochemical grid model (PGM) to estimate the small increases in concentrations of ozone and particulate matter (PM) in the region as a result of a project's emissions of criteria and precursor pollutants; and 2) running the U.S. EPA Benefits Mapping and Analysis Program (BenMAP) to estimate the resulting health impacts from these increases in concentrations of ozone and PM.

Limitations of Regional-Scale Dispersion Models

It is technically feasible to conduct regional-scale criteria pollutant modeling for a development project. Particulate matter (PM) can be divided into two categories: directly emitted PM and secondary PM. Secondary PM, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur oxides (SO_x) and NO_x, Ozone (O_3) is a secondary pollutant formed from the oxidation of reactive organic gases (ROGs) and nitrogen oxides (NOx) in the presence of sunlight. Rates of ozone formation are a function of a variety of complex physical factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns.. Secondary formation of PM and ozone can occur far from the original emissions source from regional transport due to wind and topography (e.g. low-level jet stream). As such, modeling concentrations of secondary PM and ozone require photochemical grid models (PGMs), such as CMAQ and CAMx. These models have a much larger "grid" system and much lower resolution than localized dispersion modeling (e.g., AERMOD). For example, common grid cells in PGMs are 4x4 kilometers, while AERMOD can identify concentrations at the meter-level.

Photochemical modeling also depends on all emission sources in the entire domain. Low resolution and spatial averaging produces "noise" and model uncertainty that can exceed a project's specific emissions. Additionally, regional-scale models are highly contingent upon background concentrations. Factors such as meteorology and topography greatly affect the certainty levels of predicted concentrations at receptor points. As a result, there are statistical ranges of uncertainty through all the modeling steps. Due to these factors, it is difficult to predict ground-level secondary PM and ozone concentrations associated with relatively small emission sources with a high degree of certainty. While it is possible to use a regional-scale model to predict these regional concentrations, when a project's emissions are less than the regional model's resolution, the resultant ambient air quality concentrations will be within the margin of uncertainty. In CEQA terms, this would fit the definition of "speculative". Only when the scale of emissions would result in changes in ambient air quality beyond the model margin of uncertainty would the results not be "speculative" as defined by CEQA.

Identifying Health Effects due to Ambient Air Quality Changes

BenMap is a model developed by the USEPA to understand the health effects from changes in ozone and PM concentrations. If there is an acceptable level of confidence that the results provided by the regional dispersion modeling are valid, then these concentrations can be translated into health outcomes using BenMap. The health outcomes in BenMap are based on changes in ambient air concentrations and the population exposed to these changes. Data provided by this analysis may indicate increased number of workdays lost to illness, hospital admissions (respiratory), emergency room visits (asthma), or mortality, among other health effects. These are called "health incidences."

Translating the incremental increase in PM and ozone concentrations to specific health effects is also subject to uncertainty. For example, regional models assign the same toxicity to PM regardless of the source of PM (such as road dust as exhaust), and thus potentially overpredict adverse health effects of PM. BenMap also assumes that health effects can occur at any concentration, including small incremental concentrations, and assumes that impacts seen at large concentration differences can be linearly scaled down to small increases in concentration, with no consideration of potential thresholds below which health impacts may not occur. Additionally, BenMap is used for assessing impacts over large areas and populations and was not intended to be used for individual projects. For health incidences, the number of hospitalizations or increase in morbidity predicted by BenMap is greatly affected by the population characteristics.[1] Small increases in emissions in an area with a high population have a much greater affect than large increases in emissions over an area with a small population. As a result, the same amount of emissions generated in an urban area could result in greater health consequences than if the same emissions occurred on the urban periphery, where fewer people may be affected. This will also depend on other factors including meteorology and photochemistry, as discussed above. Emissions in areas with conditions that favor high air dispersion or unfavorable ozone formation will likely have relatively lower effects on ambient air quality and health outcomes.

While BenMap provides additional statistical information about health consequences requested by the Court in the Friant Ranch decision, this information is only meaningful when presented with the full health context of the region or locality at hand. For example, if the BenMap analysis says that the project would result in two additional hospital admissions, this result alone is not useful unless one identifies how many hospital admissions are caused by poor air quality now (without the project) and how many hospital admissions occur

[1] BenMap assigns prevalence rate for asthma and other health effects based on indicators such as gender, race, age, ethnicity, etc. The BenMap user manual specifically states that there are a wide range of variables that can be included in the health effect function. The health effect function was developed based on epidemiological studies, and specifically states that "there are a number of issues that arise when deriving and choosing between health effect functions that go well beyond this user manual. Hence, it is important to have a trained health researcher assist in developing the impact function data file."

overall (due to air quality and other causes). Because health is not solely influenced by ambient air quality, and has many factors that are highly variable across geographies and populations, there is an added level of uncertainty in using a generalized identification of health effects due to air quality conditions overlaid onto a specific diverse set of health conditions and other factors. Regardless of the uncertainty levels, if regional health effects are identified for a project, then the CEQA analysis needs to provide a full health baseline for decision-makers and the public to be able to understand the marginal change due to project criteria pollutant emissions. Given the margin of uncertainty at each step in the process (regional scale modeling, existing ambient air quality effects on health, population health conditions vulnerability, and marginal health effects of air pollution), the identification of marginal health effects due to individual projects using regional air quality modelling and tools such as BenMap are likely to be within the level of uncertainty and thus defined as "speculative" per CEQA.

The Role of Air Districts

Regional, community, multiscale air quality modeling conducted by the air districts for each individual air basin or locality within the air basin would be the most appropriate indictor of health effects for projects. The AQMPs provide a forecast of regional emissions based on regional dispersion modeling for all sources within the air basin. Regional-scale models attempt to account for all emissions sources within an air basin.

The regional scale model requires inputs such as existing and future regional sources of pollutants and global meteorological data, which are generally not accessible by CEQA practitioners. Modeling of future years should consider future concentrations of air pollutants based on regional growth projections and existing programs, rules, and regulations adopted by Federal, State, and local air districts. In general, air pollution in California is decreasing as a result of Federal and State laws. Based on the air quality management plans (AQMPs) required for air districts in a nonattainment area, air quality in the air basins are anticipated to improve despite an increase in population and employment growth. Air districts are charged with assessing programs, rules, and regulations so that the increase in population and employment does not conflict with the mandate to achieve the AAQS. Because emissions forecasting and health outcomes based on the regional growth projections to achieve the AAQS is under the purview of the air districts, it should also fall on the air districts to identify the potential health outcomes associated with individual project's criteria pollutant emissions.

The South Coast Air Quality Management District (South Coast AQMD) and the Sacramento Metropolitan Air Quality Management District (Sacramento Metropolitan AQMD) are exploring concepts for project-level analysis in light of Friant Ranch to assist local lead agencies.

» South Coast AQMD is looking at the largest land use development project they have had in the air basin and doing a sensitivity analysis (using CAMx for photochemical grid modeling and BenMap for health outcomes) to see how locating a very large project in different parts of the air basin (Los Angeles, Inland Empire, v. Orange County) would affect the health incidence.

» Sacramento Metropolitan AQMD is also looking at a screening process. Rather than looking at the upper end (i.e., largest project in the air basin), Sacramento Metropolitan AQMD is starting at the smallest project that exceeds the regional significance threshold and running CAMx and BenMap at different locations in the air basin to see how it affects regional health incidences.

Guidance from Air Districts would be the most effective way to incorporate meaningful information concerning regional health effects of project criteria pollutants in CEQA analyses, including guidance as to when modelling is and is not useful and meaningful, how modelling should be conducted, and how to best present additional information to inform decision-makers and the public about a project's impacts.

So…until air districts do their part, what should we do?

PROJECTS WITH CRITERIA POLLUTANT EMISSIONS BELOW AIR DISTRICT THRESHOLDS

The Friant Ranch ruling was about providing disclosure of health effects of project emissions that were well over the significance thresholds. Since the air district thresholds are tied to a level the air districts find to not have a significant effect on ambient air quality, there should be no need to discuss the health effects of criteria pollutant emissions that are less than the significance thresholds.

PROJECTS WITH CRITERIA POLLUTANT EMISSIONS ABOVE AIR DISTRICT THRESHOLDS

Pursuant to Section 15125 of the CEQA Guidelines, the environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. For CEQA, the health effects associated with buildout of a project would occur at the project's horizon year. Because CEQA requires an analysis of the change from existing conditions, the change in effects would be associated with changes in ambient air quality and associated health outcomes between existing conditions and the project's horizon year. Therefore, in order to show how a project affects health outcomes in an air basin, the CEQA documents will need to qualitatively or quantitatively address: (1) existing ambient criteria pollutant concentrations, health incidences due to existing air quality, and health incidences overall; 2) future (without project) ambient criteria pollutant concentrations and health incidences, and 3) future (with project) ambient criteria pollutant concentrations and health incidences.

Projects with significant criteria pollutant emissions could use regional modelling and BenMap to identify health effects of project emissions, but it is likely that many (or most) projects that are not regionally substantial in scale will be shown to have minimal regional changes in PM and ozone concentrations and therefore minimal changes in associated health effects. In addition, many projects may have emissions that are less than the uncertainty level of regional air quality models and BenMap health effects modeling; in these cases, quantitative results will not be meaningful. Thus, absent better direction from air districts, CEQA lead agencies will have to determine on a case by case basis whether a qualitative discussion of health effects will suffice, or whether regional modeling, despite its limitations, should be conducted for the project.

Where a project has substantial criteria pollutant emissions when considered on a regional scale, and there is reason to believe that the modeling of ambient air quality and regional health effects would produce non-speculative results when considering modeling uncertainties, then CEQA lead agencies should use regional modelling.

Conclusion

The purpose of CEQA is to inform the public as to the potential for a project to result in one or more significant adverse effects on the environment (including health effects). A CEQA document must provide an understandable and clear environmental analysis and provide an adequate basis for decision making and public disclosure. Regional dispersion modeling of criteria pollutants and secondary pollutants like PM and ozone can provide additional information, but that information may be within the margin of modelling uncertainty and/or may not be meaningful for the public and decision-makers unless a full health context is presented in the CEQA document. Simply providing health outcomes based on use of a regional-scale model and BenMap may not satisfy the goal to provide decision-makers and the public with information that would assist in weighting the environmental consequences of a project. A CEQA document must provide an analysis that is understandable for decision making and public disclosure. Regional scale modeling may provide a technical method for this type of analysis, but it does not necessarily provide a meaningful way to connect the magnitude of a project's criteria pollutant emissions to health effects without speculation.

In order to accurately connect the dots, we urge California air districts to provide more guidance on how to identify and describe the health effects of exceeding regional criteria pollutant thresholds. The air districts are the primary agency responsible for ensuring that the air basins attain the AAQS and ensure the health and welfare of its residents relative to air quality. Because emissions forecasting and health outcomes are based on the regional growth projections to achieve the AAQS is under the purview of the air districts, it should fall on the air districts to identify the potential health outcomes associated with exceeding the CEQA thresholds for projects. The air districts should provide lead agencies with a consistent, reliable, and meaningful analytical approach to correlate specific health effects that may result from a project's criteria pollutant emissions.

Glossary

AAQS – Ambient Air Quality Standards

BenMap – Benefits Mapping and Analysis Program

CAMx – Comprehensive Air Quality Model with extensions

CMAQ – Community Multiscale Air Quality

NOx – Nitrogen Oxides

PM – Particulate Matter

SOx – Sulfur Oxides

State – California

USEPA – United States Environmental Protection Agency

S219783

IN THE SUPREME COURT OF C ALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*

Kurt R. Wiese, General Counsel (SBN 127251)
*Barbara Baird, Chief Deputy Counsel (SBN 81507)
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765
Telephone: 909-396-2302; Facsimile: 909-396-2961
Email: bbaird@aqmd.gov
Counsel for [Proposed] Amicus Curiae,
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

TABLE OF CONTENTS

TABLE OF AUTHORITIES

State Cases

State Cases (cont'd)

California Statutes

California Statutes (cont'd)

California Regulations

Cal. Code Regs., tit. 14, §§ 15000, et seq. ("CEQA Guidelines")

Federal Statutes

Rules

Other

TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE SUPREME COURT:

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review de novo.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
BARBARA BAIRD, CHIEF DEPUTY COUNSEL

By: Barbara Baird
Barbara Baird
Attorneys for [proposed] Amicus Curiae
SOUTH COAST AIR QUALITY
MANAGEMENT DISTICT

BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 ["*Laurel Heights I*"]) Accordingly, "an agency must use its best efforts to find out and disclose all that it reasonably can." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)[1].). However, "[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible." (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project's pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

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[1] The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq.*

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality

management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "chapter 7" hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Executive Summary" hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called "criteria" document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called "criteria pollutants." EPA must then establish "national ambient air quality standards" at levels "requisite to protect public health",

allowing "an adequate margin of safety." (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), http://www.epa.gov/air/criteria.html (last updated Oct. 21, 2014).)[2]

Under the Clean Air Act, EPA sets emission standards for motor vehicles and "nonroad engines" (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as "stationary sources." The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified "major" stationary sources use technology to achieve the "lowest achievable emission rate," and to control minor stationary sources as

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[2] Particulate matter (PM) is further divided into two categories: fine particulate or $PM_{2.5}$ (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM_{10}) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), http://www.epa.gov/airquality/particlepollution/ (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called "hazardous air pollutants" calling for EPA to establish "maximum achievable control technology" (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as "toxic air contaminants" (TACs) which are subject to two state-required programs. The first program requires "air toxics control measures" for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare "health risk assessments" for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as "significant," the facility must implement a "risk reduction plan" to bring its risk levels below "significant" levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv; then follow "Rule 1401" hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the "lead agency" that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called "responsible" agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to "trustee agencies" and agencies "with jurisdiction by law" including "authority over resources which may be affected by the project." (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.[3]

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[3] The SCAQMD's CEQA program for its rules is a "Certified Regulatory Program" under which it prepares a "functionally equivalent" document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.[4] SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a "responsible agency" for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii; then follow "Rule 1303" hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with "jurisdiction by law" over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

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[4] The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015; then follow "16. Lead Agency Projects and Environmental Documents Received by SCAQMD" hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, http://www.arb.ca.gov/regact/diesltac/diesltac.htm; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, supra, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT'S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR's conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1, supra*, 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must "draw[] a line that divides *sufficient* discussions from those that are *insufficient*." (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that "[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis." (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." Case law reflects this: "Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible." (*Association of Irritated Residents v. County of Madera, supra,* 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be "feasible"; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a "health risk assessment" before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the "maximally exposed individual" (worker and residence exposures). (*See, e.g.*, SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it

is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588), pp. 11-16*; (last visited Apr. 1, 2015) http://www.aqmd.gov/home/library/documents-support-material; "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, http://www.aqmd.gov/home/forms ; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from

the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants[5], such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, http://www.epa.gov/airquality/ozonepollution/ (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, http://www.epa.gov/ttnamti1/archive/cpreldoc.html (last visited Apr. 1, 2015).) NO_x and VOC are known as "precursors" of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population,* Figure 9, http://www.epa.gov/apti/ozonehealth/population.html#levels (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP (February 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Appendix V: Modeling & Attainment Demonstrations" hyperlink,

[5] See discussion of types of pollutants, supra, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts "internal bank" of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.[6] The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).[7] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6*)* at p. 4.1-35, Table 4.1-29.)

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[6] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6,* http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011; the follow "26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System" (last visited April 1, 2015).)

[7] The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; https://www.epa.gov/ttnamti1/archive/cpreldoc.html; then search "Guideline on Ozone Monitoring Site Selection" click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA "significance" threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook; then follow "SCAQMD Air Quality Significance Thresholds" hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a "major" stationary source for "extreme" ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA "significance" finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD's thresholds of significance may determine

that many projects have "significant" air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter ($PM_{2.5}$)[8], another "criteria" pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of $PM_{2.5}$. (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional $PM_{2.5}$ in the District, up to 2.82 tons/day (5,650 lbs/day of $PM_{2.5}$, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this $PM_{2.5}$ health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties. [9] (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

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[8] SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for "$PM_{2.5}$" or particulate matter less than 2.5 microns in diameter.

[9] Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011; then follow "Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project" hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small $PM_{2.5}$ increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated $PM_{2.5}$ emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the "normal" "existing conditions" CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.[10]

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[10] Whether a particular study would result in "informational value" is a part of deciding whether it is "feasible." CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.[11] Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

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technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

[11] In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, "a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency's action de novo under the "independent judgment" test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby "accord[ing] greater deference to the agency's substantive factual conclusions." (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project's impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR's analysis is sufficient to meet CEQA's informational purposes,[12] while Friant Ranch contends that the substantial evidence standard applies to this question.

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[12] Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,[13] containing two levels of inquiry that should be judged by different standards.[14]

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

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[13] Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

[14] Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document.*" (*Laurel Heights I, supra,* 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses "in sufficient detail to enable meaningful participation and criticism by the public. '[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.'" (*Laurel Heights I, supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority, supra*, 57 Cal.4th 439, 448, 457:

whether "existing conditions" baseline would be misleading or uninformative judged by substantial evidence standard.[15])

If the lead agency's determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA's information disclosure provisions, since it would be infeasible to provide additional information. This Court's decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency's finding that "the precise parameters of future herbicide use could not be predicted." *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact "substantial". (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

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[15] The substantial evidence standard recognizes that the courts "have neither the resources nor the scientific expertise" to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra,* 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra,* 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.[16]

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[16] We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield, supra,* 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project. " *Bakersfield, supra,* 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra,* 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra,* at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR . . . ." (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra,* at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra*, at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, "Environmental Checklist Form."[17]) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency's noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts' proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA's prohibition on courts interpreting its provisions "in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines." (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra,* at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project's significant impacts on human health. However, except in certain particular circumstances,[18] neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law's requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe "health and safety problems caused by {a project's} physical changes"].) Accordingly, courts must interpret CEQA as a whole to

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[17] Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

[18] E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.[19] Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck,* 198 Cal.App.4th at p. 959 (citations omitted).[20]

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[19] We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131) , or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

[20] Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta,* (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)[21]

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districts should be considered "state agencies" for purposes of the requirement to consult with "trustee agencies" as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere "local agencies" whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

[21] In *Schenck,* the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck,* 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district's published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district's published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay, supra,* 91 Cal.App.4th 1344, 1369-1371.)

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guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra,* 70 Cal.App.4th 482, 492.

CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is "sufficient as an informational document" is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
BARBARA BAIRD, CHIEF DEPUTY COUNSEL

By: Barbara Baird
Barbara Baird
Attorneys for Amicus Curiae
SOUTH COAST AIR QUALITY MANAGEMENT DISTICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015 Respectfully submitted,

Barbara Baird

Barbara Baird

PROOF OF SERVICE

I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.

Patricia Anderson

SERVICE LIST

James G. Moose, Tiffany K. Wright, Laura M. Harris
REMY MOOSE MANLEY, LLP
555 Capitol Mall, Suite 800
Sacramento, CA 95814

Attorneys for Real Party in Interest and Respondent *Friant Ranch, L.P.*

Bryan N. Wagner
WAGNER & WAGNER
7110 N. Fresno St, Suite 340
Fresno, CA 93720

Attorney for Real Party in Interest and Respondent *Friant Ranch, L.P.*

Sara Hedgpeth-Harris
LAW OFFICE OF SARA HEDGPETH-HARRIS
5445 E. Lane Avenue
Fresno, CA 93727

Attorney for Plaintiffs and Appellants *Sierra Club, et al*

Daniel C. Cederborg
Bruce B. Johnson, Jr.
Zachary Stephen Redmond
OFFICE OF THE FRESNO COUNTY COUNSEL
2220 Tulare Street, Suite 500
Fresno, CA 93721

Attorneys for Respondents *County of Fresno*

Clerk of the Court
California Court of Appeal
Fifth Appellate District
2424 Ventura Street
Fresno, CA 93721
(via U.S. Mail & Electronic Transmission)

Clerk of the Court
Superior Court of California
County of Fresno
1130 O Street
Fresno, CA 93721

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

CATHERINE T. REDMOND (State Bar No. 226957)
261 High Street
Duxbury, Massachusetts 02332
Tel. (339) 236-5720
Catherinetredmond22@gmail.com

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT
Annette Ballatore-Williamson, District Counsel (State Bar. No. 192176)
1990 E. Gettysburg Avenue
Fresno, California 93726
Tel. (559) 230-6033
Annette.Ballatore-Williamson@valleyair.org

Counsel for San Joaquin Valley Unified Air Pollution Control District

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Fresno, California 93726
Tel. (559) 230-6033
Annette.Ballatore-Williamson@valleyair.org

Counsel for San Joaquin Valley Unified Air Pollution Control District

APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

> Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality

conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a "serious nonattainment" area to come into attainment of health-based National Ambient Air Quality Standard ("NAAQS") for coarse particulate matter (PM10), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of "extreme" nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates "smog" and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to "offset" vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)[1], ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

[1] San Joaquin's incentive program has been so successful that through 2012, it has awarded over $ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. *See* SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) *available at* http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf.

Valley counties and cities that implement the California Environment Quality Act (CEQA).[2] In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.[3] Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.[4] For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.[5]

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

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[2] *See, e.g.*, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), *available at* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

[3] Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

[4] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

[5] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).[6] The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

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[6] CEQA does not require speculation. *See, e.g., Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

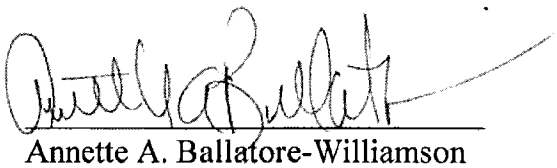
Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015



Annette A. Ballatore-Williamson
District Counsel
Attorney for Proposed Amicus Curiae

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AIR POLLUTION CONTROL
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Catherinetredmond22@gmail.com

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Annette.Ballatore-Williamson@valleyair.org
Counsel for San Joaquin Valley Unified Air Pollution Control District

TABLE OF CONTENTS

TABLE OF AUTHORITIES

CASES

FEDERAL STATUTES

CALIFORNIA STATUTES

OTHER AUTHORITIES

I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District ("Air District") respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report ("EIR") for the Friant Ranch development project was inadequate under the California Environmental Quality Act ("CEQA") because it did not include an analysis of the correlation between the project's criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as "TACs") regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health,

they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS. Accordingly, while the type of individual facility / health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully

appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

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A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.[1] Once formed, ozone can be transported long distances by wind.[2] Because of the complexity of ozone formation, a specific tonnage amount of NOx or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NOx or VOCs can have high levels of ozone concentration simply due to wind transport.[3] Conversely, the San Francisco Bay Area has six times more NOx and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

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[1] *See* United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: http://www.epa.gov/airquality/ozonepollution/basic.html (visited March 10, 2015).
[2] *Id.*
[3] *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.[4]

Particulate matter ("PM") can be divided into two categories: directly emitted PM and secondary PM.[5] While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.[6] Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SOx) and NOx.[7] Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NOx, SOx and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards ("NAAQS"), which are statutorily required to be set by the United States Environmental Protection

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[4] *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).

[5] United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: http://www.epa.gov/airquality/particlepollution/basic.html (visited March 10, 2015).

[6] *Id.*

[7] *Id.*

Agency ("EPA") at levels that are "requisite to protect the public health," 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.[8]

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.[9] Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District's tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NOx, SOx and VOCs) and the atmospheric chemistry and meteorology of the Valley.[10] At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

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[8] See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: http://www.epa.gov/air/criteria.html#3 (visited March 10, 2015).

[9] *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).

[10] *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM2.5 Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf (visited March 19, 2015).

emissions Valley wide.[11] Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.[12]

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.[13] The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.[14] This "offset"

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[11] *Id.*

[12] Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. *See* San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at: http://www.valleyair.org/rules/currntrules/Rule2201041l.pdf (visited March 19, 2015).

[13] *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf (visited March 30, 2015).

[14] *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.[15] In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club*, *supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, "cumulative impacts."

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

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[15] [15] *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NOx inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.[16] Running the photochemical grid model used for predicting ozone attainment with the

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[16] *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9,
available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

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B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated

with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

> [t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)[17] The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)[18] The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

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[17] Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

[18] Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "'[T]he objections must be sufficiently specific so that the agency has the

opportunity to evaluate and respond to them.' [Citation.]" *Sierra Club v. City of Orange*,163 Cal.App.4th at 536.[19]

As discussed above, the City's comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since "[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action." *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal's decision requiring an analysis correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

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[19] *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or "piecemealed" the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as *"the use of a single document for both a project-level and a program-level EIR [is] 'confusing',"* and *"[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,"* were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015

Catherine T. Redmond
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY
UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015

Annette A. Ballatore-Williamson
District Counsel (SBN 192176)

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a p[arty to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

(XX) **(BY MAIL)** I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.

( ) **(BY ELECTRONIC MAIL)** I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.

( ) **(BY OVERNIGHT MAIL)** I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.

Esthela Soto

SERVICE LIST

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

Sara Hedgpeth-Harris, Esq. LAW OFFICE OF SARA HEDGPETH-HARRIS 2125 Kern Street, Suite 301 Fresno, California 93721 Telephone: (559) 233-0907 Facsimile: (559) 272-6046 Email: sara.hedgpethharris@shh-law.com	Attorney for Plaintiffs and Appellants, Sierra Club, et al
Daniel C. Cederborg, Esq. Bruce B. Johnson, Jr., Esq. OFFICE OF THE FRESNO COUNTY COUNSEL 2220 Tulare Street, Suite 500 Fresno, California 93721 Telephone: (559) 600-3479 Facsimile: (559) 600-3480 Email: bjohnson@co.fresno.ca.us	Attorneys for Defendant and Respondent, County of Fresno
Bryan N. Wagner, Esq. WAGNER & WAGNER 7110 N. Fresno Street, Suite 340 Fresno, California 93720 Telephone: (559) 224-0871 Facsimile: (559) 224-0885 Email: bryan@wagnerandwagner.com	Attorneys for Real Party in Interest/Respondent Friant Ranch, L.P.
Clerk of the Court Superior Court of California County of Fresno 1130 'O' Street Fresno, California 93721 Telephone: (559) 457-1900	
Clerk of the Court Fifth District Court of Appeal 2424 Ventura Street Fresno, California 93721 Telephone: (559) 445-5491	

R. Tyson Sohagim, Esq. THE SOHAGI LAW GROUP 11999 San Vicente Blvd., Suite 150 Los Angeles, California 90049 Telephone: (310) 475-5700 Facsimile: (310) 475-5707 Email: tsohagi@sohagi.com	Attorney for Amici Curiae; League of California Cities, and the California State Association of Counties
Marcia L. Scully, Esq. General Counsel METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA Post Office Box 54153 Los Angeles, California 90054 Telephone: (213) 217-6115	Attorney for Amicus Curiae, The Metropolitan Water District of Southern CA
Amy Minteer, Esq. CHATEN-BROWN & CARSTENS LLP 2200 Pacific Coast Highway, Suite 318 Hermosa Beach, California 90254 Telephone: (310) 798-2400 Facsimile: (310) 798-2402 Email: ACM@CBCEarthlaw.com	Attorney for Amici Curiae, Association of Irritated Residents, Medical Advocates for Healthy Air, and Coalition for Clean Air
Shanda M. Beltran, Esq. General Counsel BUILDING INDUSTRY LEGAL DEFENSE FOUNDATION 17744 Sky Park Cr., Suite 170 Irvine, California 92614 Telephone: (949) 553-9500 Facsimile: (949) 769-8943 Email: sbeltran@biasc.org	Attorney for Amicus Curiae, Building Industry Legal Defense Foundation
Gene Talmadge, President CALIFORNIA ASSOCIATION OF ENVIRONMENTAL PROFESSIONALS 40747 Baranda Court Palm Desert, California 92260 Telephone: (760) 340-4499 Facsimile: (760) 674-2479	Attorney for Amicus Curiae, California Association of Environmental Professionals
Jennifer L. Hernandez, Esq. HOLLAND & KNIGHT LLP 50 California Street, Suite 2800 San Francisco, California 94111	On behalf of Amicus Curiae, CEQA Research Council

Telephone: (415) 743-6927 Facsimile: (415) 743-6910 Email: Jennifer.hernandez@hklaw.com	

Appendices

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