Appendix 5.3-1 Air Quality and Greenhouse Gas Modeling

Appendices

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Land Use Statistics - City of Wildomar

	Existing Conditions	No Project (Current GP)	Buildout Estimates	Change from Existing Conditions		Change from the Current GP	
	2019	**2045**	**2045**	**2019-2045**	**%**	**2019-2045**	**%**
Housing Units	11,988	19,284	20,980	8,992	75%	1,696	9%
Non-residential SF	2,992,377	4,252,115	5,957,915	2,965,538	99%	1,705,800	40%
Population	37,326	60,045	65,325	27,999	75%	5,280	9%
Employment	5,841	9,516	12,115	6,274	107%	2,599	27%
Service Population	**43,167**	**69,561**	**77,440**	**34,273**	79%	**7,879**	11%

AQMP Consistency Analysis

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

Category	Existing	2045 Current GP	2045 Proposed Project	Change from Existing		Change from the Current GP	
				Change	Percent	Change	Percent
Population	37,326	60,045	65,325	27,999	75%	5,280	9%
Employment	5,841	9,516	12,115	6,274	107%	2,599	27%
SP	43,167	69,561	77,440	34,273	79%	7,879	11%
VMT per Day	904,100	1,321,564	1,451,849	547,749	61%	130,285	10%
VMT/person	24.2	22.0	22.2	-2.0	-8%	0.2	1%
VMT/SP	20.9	19.0	18.7	-2.2	-10%	-0.3	-1%

Notes:

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) is provided by Chen Ryan Transportation is based on the RIVCOM 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 two types of trips:

» Internal OD VMT include vehicle trips that originated and terminated within the City boundary.

» External OD VMT includes vehicle trips that either originated or terminated (but not both) within the City.

Wildomar Community GHG Emissions Inventory and Forecast

Category	Existing		2045		Change from Existing (2045)	
	TOTAL		TOTAL		TOTAL	
On-Road Transportation	136,705	61%	150,397	56%	13,692	10%
Building Electricity	32,266	14%	28,988	11%	-3,278	-10%
Building Natural Gas	26,582	12%	47,313	17%	20,730	78%
Off-Road Vehicles and Equipment	5,557	2%	6,187	2%	630	11%
Solid Waste/Landfills	2,320	1%	4,163	2%	1,842	79%
Refrigerants	17,690	8%	30,960	11%	13,270	75%
Water Use	2,255	1%	2,063	1%	-192	-8%
Wastewater Treatment	572	0%	726	0%	154	27%
Total Community Emissions	**223,947**	**100%**	**270,796**	**100%**	**46,849**	**21%**
Service Population (SP)	43,167		77,440		34,273	79%
$MTCO_2e/SP$	5.2		3.5		-1.7	-33%
Trajectory to AB 32, SB 32 and AB 1279	**33,592**	-85%	**No**	**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 Riverside County. 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 SB 32 and AB 1279 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

Wildomar Community Criteria Air Pollutant Emissions Inventory and Forecast

Sources

[1] Source: Chen Ryan Transportation 2023; EMFAC2021 Version 1.0.2 Emissions Database (Sub-Area Riverside (SC))

[2] Sources: SoCalGas 2023. CalEEMod 2022 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 1.0.5

[4] Source: CalEEMod 2022 User's Guide

EXISTING (2019)

Phase	Existing Criteria Air Pollutant Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	70	780	2,559	8	61	28
Energy[2]	7	127	61	1	10	10
Offroad Equipment[3]	115	219	1,793	0	11	10
Consumer Products[4]	496					
Total	**688**	**1,125**	**4,413**	**9**	**82**	**48**

EXISTING LAND USES (2045 Emission Rates)

Phase	Existing (2045) Criteria Air Pollutant Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	11	167	930	6	51	18
Energy[2]	7	127	61	1	10	10
Offroad Equipment[3]	115	219	1,793	0	11	10
Consumer Products[4]	496					
Total	**629**	**512**	**2,784**	**7**	**72**	**38**

Proposed General Plan Update 2045

Phase	Project (2045) Criteria Air Pollutant Emissions(lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	18	268	1,493	9	82	29
Energy[2]	13	227	110	1	18	18
Offroad Equipment[3]	185	225	3,205	0	11	10
Consumer Products[4]	931					
Total	**1,148**	**719**	**4,808**	**11**	**111**	**57**

Wildomar Community Criteria Air Pollutant Emissions Inventory and Forecast

Net Change (No Project)

Phase	Net Change (2045-2045 No Project) Criteria Air Pollutant Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	7	101	563	3	31	11
Energy[2]	6	99	49	1	8	8
Offroad Equipment[3]	71	7	1,412	0	0	0
Consumer Products[4]	436					
Total	**519**	**207**	**2,024**	**4**	**39**	**19**
South Coast AQMD Threshold	**55**	**55**	**550**	**150**	**150**	**55**
Increase from Baseline?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**

NET CHANGE (from Existing Conditions)

Phase	Net Change (2045-Existing) Criteria Air Pollutant Emissions(lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	-52	-512	-1,066	1	21	1
Energy[2]	6	99	49	1	8	8
Offroad Equipment[3]	71	7	1,412	0	0	0
Consumer Products[4]	436	0	0	0	0	0
Total	**461**	**-406**	**395**	**2**	**29**	**9**
South Coast AQMD Threshold	**55**	**55**	**550**	**150**	**150**	**55**
Increase from Existing	**Yes**	**No**	**No**	**No**	**No**	**No**

Area Sources - Residential Consumer Product Use[a]

	Emissions = EF x Building Area		
Statewide (2008)	EF =	2.14E-05	lbs/sqft/day
South Coast AQMD Rule 1143	**EF =**	**1.98E-05**	**lbs/sqft/day**

Sources/Notes:

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	0.2%	2,448	5
2010 to 2019	7.3%	2,524	184
2000 to 2009	33.0%	2,404	793
1990 to 1999	15.9%	2,116	337
1980 to 1989	23.6%	1,819	429
1979 or earlier	20.0%	1,699	340
	100%		2,088

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

a. United States Census Bureau, Selected Housing Characteristics, Wildomar City, 2021. 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

	2019 Existing	2045 Proposed	2045 Current GP
Housing Units	11,988	20,980	19,284
Residential SQFT	25,031,803	47,039,723	42,888,763
lbs VOC per day	496	931	849

Criteria Air Pollutants from Natural Gas

Rate	lbs/MMBTU					
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).

Wildomar	Existing	Year 2045
	Therms	
Residential	4,378,058	7,661,967
Nonresidential	617,081	1,228,627
Total	**4,995,139**	**8,890,594**

Natural Gas	Existing lbs/year					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Residential	6	111	47	1	9	9
Nonresidential	1	17	14	0	1	1
TOTAL	**7**	**127**	**61**	**1**	**10**	**10**

Natural Gas	2045 lbs/year					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Residential	11	194	82	1	16	16
Nonresidential	2	33	28	0	3	3
TOTAL	**13**	**227**	**110**	**1**	**18**	**18**

Energy Data Requests to SCE and SoCalGas

Southern California Edison (SCE). 2023, October 10. Energy Report for Wildomar. **Request ID SCE31129554** (2018 through 2022)

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

	Annual Kwh[1]				
Category	2018	2019	2020	2021	2022
Residential	94,688,993	91,443,491	104,912,130	101,267,244	105,189,672
Non-Residential[1]	41,644,454	41,771,803	41,057,502	43,462,389	44,287,425
Total kwh	136,333,447	133,215,294	145,969,632	144,729,633	149,477,097

Notes:

[1] Non-Residential includes agricultural, commercial, and industrial land use.

SoCalGas. 2023, November 2. Natural Gas Use in Wildomar (2018-2022)**. Request ID 709**

	Annual Therms[1]				
Category	2018	2019	2020	2021	2022
Commercial	450,047	617,081	473,990	552,406	465,206
Industrial	0	0	0	0	0
Single-Family Residential	3,434,505	4,141,488	4,089,999	3,786,626	3,712,013
Multi-Family Residential	217,432	236,570	228,103	224,239	224,011
Total Therms	4,101,984	4,995,139	4,792,092	4,563,271	4,401,230

City of Wildomar: GHG Emissions from Energy Use

Southern California Edison (SCE) and SoCalGas Emission Factors				
	lbs/MMBTU	**lbs/MMBTU**	**lbs/MMBTU**	**lbs/MMBTU**
	CO_2	**CH_4**	**N_2O**	**CO_2e**
All Years	117	0.01040	0.00020	**117.3**
	MT/Therm	**MT/Therm**	**MT/Therm**	**MT/Therm**
	CO_2	**CH_4**	**N_2O**	**CO_2e**
All Years	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).

SCE				
	Intensity factor (lbs/MWH)			**CO_2e**
	CO_2 lbs/MWH	CH_4 lbs/MWH	N_2O lbs/MWH	lbs/MWh
2019	531.983	0.033	0.004	**534.0**
2045	260.788	0.033	0.004	**262.8**
	Intensity factor (Mtons/MWH)			**CO_2e**
	CO_2 MTons/MWH	CH_4 MTons/MWH	N_2O MTons/MWH	MTons/MWh
2019	0.241	1.50E-05	1.81E-06	**0.242**
2045	0.118	1.50E-05	1.81E-06	**0.119**

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.

GHG Emissions from Energy Use

Actual Energy Use - Year 2019	SCE MWH/YR	SoCalGas Therms
Commercial	NA	617,081
Industrial	NA	0
Residential	91,443	4,378,058
Non-Residential	41,772	NA
City Total	133,215	4,995,139

Notes:

[1] Non-Residential includes agricultural, commercial, and industrial land use.

	MTCO2e/Yr	
Commercial	NA	3,284
Industrial	NA	0
Residential	22,148	23,299
Non-Residential	10,117	NA
City Total	32,266	26,582

Forecast Methodology	Existing	Proposed Project	Current GP
Residential - Dwelling Units	11,988	20,980	19,284
Nonresidential - Square footage	2,992,377	5,957,915	4,252,115

MWH per Unit per year	7.6	Therms per Unit per year	365
MWH per SQFT per year	0.01	Therms per SQFT per year	0.2

	Existing	Proposed Project	Current GP
Electricity		**MWH**	
Nonresidential	41,772	83,169	59,357
Residential	91,443	160,034	147,097
Total	133,215	243,203	206,454
Electricity		**MTCO2e**	
Nonresidential	10,117	9,913	7,075
Residential	22,148	19,075	17,533
Total MTCO2e Electricity	**32,266**	**28,988**	**24,608**

	Existing	Proposed Project	Current GP
Natural Gas		**Therms**	
Nonresidential	617,081	1,228,627	876,861
Residential	4,378,058	7,661,967	7,042,582
Total	4,995,139	8,890,594	7,919,443
Natural Gas		**MTCO2e**	
Nonresidential	3,284	6,538	4,666
Residential	23,299	40,774	37,478
Total MTCO2e Natural Gas	**26,582**	**47,313**	**42,145**

Solid Waste Disposal

Source: CalRecycle Recycling and Disposal Reporting System Report (Overall Jurisdiction Tons For Disposal and Disposal Related Uses)

Waste Generated Within Wildomar[1]

Year	Quarter	Landfill
2021	1	7,549
2021	2	7,176
2021	3	7,249
2021	4	7,048
Total 2021		29,022

Service Population in Wildomar

Existing	Proposed GP 2045	% Increase
43,167	77,440	79%

Percent of Disposal	2021	
El Sobrante Landfill	80%	*primary disposal facility*

Notes:

Source: CalRecycle. 2023, September (accessed). RDRS Report 1: Overall Jurisdiction Tons for Disposal and Disposal Related Uses.
https://www2.calrecycle.ca.gov/RecyclingDisposalReporting/Reports/OverallJurisdictionTonsForDisposal.
https://www2.calrecycle.ca.gov/RecyclingDisposalReporting/Reports/JurisdictionDisposalAndBeneficial.

[1.] Year 2021 Q1-4 waste was used as proxy for year 2019

Landfill Emission Tool (version 1.9.2021) CH_4 Model Results.

Based on the El Sobrante Landfill K-Factor

	EXISTING		GENERAL PLAN	
	CH_4 Tons	$MTCO_2e$ w/LFG Capture Existing TOTAL	CH_4 Tons	$MTCO_2e$ w/LFG Capture 2045 TOTAL
Year 1	79	501	141	898
Year 2	547	3,476	982	6,235
Year 3 (PEAK)	**614**	**3,901**	**1,102**	**6,998**
Year 4	602	3,824	1,080	6,859
Year 5	590	3,748	1,059	6,724
Year 6	579	3,674	1,038	6,590
Year 7	567	3,601	1,017	6,460
Year 8	556	3,530	997	6,332
Year 9	545	3,460	977	6,207
Year 10	534	3,391	958	6,084
Year 11	523	3,324	939	5,963
Year 12	513	3,258	920	5,845
Year 13	503	3,194	902	5,729
Year 14	493	3,130	884	5,616
Year 15	483	3,068	867	5,505
Year 16	474	3,008	850	5,396
Year 17	464	2,948	833	5,289
Year 18	455	2,890	816	5,184
Year 19	446	2,833	800	5,082
Year 20	437	2,776	784	4,981
Year 21	429	2,722	769	4,882
Year 22	420	2,668	754	4,786
Year 23	412	2,615	739	4,691
Year 24	404	2,563	724	4,598
Year 25	396	2,512	710	4,507
Year 26	388	2,463	696	4,418
Year 27	380	2,414	682	4,330
Year 28	373	2,366	668	4,244
Year 29	365	2,319	655	4,160
Year 30	358	2,273	642	4,078
Year 31	351	2,228	629	3,997
Year 32	344	2,184	617	3,918
Year 33	337	2,141	605	3,841
Year 34	330	2,098	593	3,764
Year 35	324	2,057	581	3,690
Year 36	317	2,016	570	3,617
Year 37	311	1,976	558	3,545
Year 38	305	1,937	547	3,475
Year 39	299	1,899	536	3,406
Year 40	293	1,861	526	3,339
Year 41	287	1,824	515	3,273
Year 42	282	1,788	505	3,208
Year 43	276	1,753	495	3,144
Year 44	271	1,718	485	3,082
Year 45	265	1,684	476	3,021
Year 46	260	1,651	466	2,961
Year 47	255	1,618	457	2,903
Year 48	250	1,586	448	2,845
Year 49	245	1,555	439	2,789
Year 50	240	1,524	430	2,734

Year 51	235	1,494	422	2,679
Year 52	231	1,464	414	2,626
Year 53	226	1,435	405	2,574
Year 54	222	1,407	397	2,523
Year 55	217	1,379	390	2,473
Year 56	213	1,351	382	2,424
Year 57	209	1,325	374	2,376
Year 58	204	1,298	367	2,329
Year 59	200	1,273	360	2,283
Year 60	196	1,248	352	2,238
60 YR Avg (Average Annual)	**365**	**2,320**	**655**	**4,163**

Waste. Landfill Emissions Tool Version 1.9.2021 and CalRecycle. Biogenic CO_2 emissions are not included.

Notes:

LFG capture Efficiency 0.75 AR5 CH_4 GWP 28 Tons to metric Tons 0.9071847

Waste generation based on three year average waste commitment for Wildomar obtained from CalRecycle.

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.

Decomposition based on the anaerobic decomposition factor (k) of 0.02 based on rainfall for the El Sobrante LF.

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%. The Landfill gas capture efficiency is based on the California Air Resources Board's (CARB) Local Government Operations Protocol (LGOP), Version 1.3.

Biogenic CO_2 emissions are not included.

Water and Wastewater

Water Demand for Wildomar calculated by PlaceWorks

Water	Existing[1]	Proposed Project[2]
Acre Feet Per Year	5,384	10,011
MGY TOTAL	1,754	3,262

Wastewater	Existing[3]	Proposed Project[2]
MGD	2.5	4.50
AFY	2,800	5,041
MGY TOTAL	913	1,643

Notes:

[1] Based on existing water demand from 2020 Urban Water Management Plans (UWMP).

[2] See Chapter 5.10, *Hydrology*, for calculated proposed water and wastewater generation estimates.

[3] Based on existing sewer demand from Wildomar's 2016 Sewer Master Plan.

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	Proposed Project
Non-Biogenic CO_2e TOTAL=	240	432

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

Location	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).

Southern California Edison

	Intensity factor			CO_2e
	CO_2 lbs/MWH	CH_4 lbs/MWH	N_2O lbs/MWH	lbs/MWh
2019	531.983	0.033	0.004	**534.0**
2045	260.788	0.033	0.004	**262.8**
	Intensity factor			**CO_2e**
	CO_2 MTons/MWH	CH_4 MTons/MWH	N_2O MTons/MWH	MTons/MWh
2019	0.241	1.50E-05	1.81E-06	**0.242**
2045	0.118	1.50E-05	1.81E-06	**0.119**

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

GHG Emissions from Energy Associated with Water/Wastewater

Energy Associated with Water Use	Existing Mwh	Proposed Project Mwh
TOTAL Water Use	9,309	17,309
TOTAL Wastewater Generation	1,370	2,465
Total Water/Wastewater	10,678	19,774

GHG Emissions from Energy Associated with Water Use/Wastewater Generation	Existing $MTCO_2e$	Proposed Project $MTCO_2e$
TOTAL Water Use	2,255	2,063
TOTAL Wastewater Generation	332	294
Total Water/Wastewater	2,586	2,357

Total GHG Emissions

GHG Emissions from Water/Wastewater Use	Existing $MTCO_2e$	Proposed Project $MTCO_2e$
TOTAL Water Use	2,255	2,063
TOTAL Wastewater Generation	572	726
Total Water/Wastewater	**2,827**	**2,789**

Refrigerants

Refrigerants		
2019 Statewide Refrigerant Use (AR4)	$MTCO_2e$	18,618,116
2019 California Population	People	39,283,497
	MT/person	0.47

	Existing	Proposed Project
Population	37,326	65,325
MTCO2e	17,690	30,960

Source: CARB. Greenhouse Gas Emissions Inventory Query Tool for years 2000 to 2020 (15th 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. 2023. Table DP05: ACS Demographic and Housing Estimates. https://data.census.gov/table?g=040XX00US06&tid=ACSDP5Y2019.DP05.

Area Sources

Source: OFFROAD2021. https://arb.ca.gov/emfac/emissions-inventory/2f6c8fa1b8ec8bd9f8a4f23b3d84c74a77f77161

OFFROAD2021 Estimate based on:

Agricultural Equipment	Based on agricultural acreage within Riverside County and City of Wildomar
Construction Equipment	Based on housing permits in Riverside County and City of Wildomar
Light Commercial and Industrial Equipment	Based on employment in Riverside County and City of Wildomar
Lawn & Garden	Based on housing units in Riverside County and City of Wildomar

Sources:

Farmland Acreage

Source: County of Riverside, 2019. 2019 Agricultural Production Report. https://storymaps.arcgis.com/stories/e2126e2424af49ec9406a0e7ffdb9de7.

Source: California Department of Conservation (CDC). 2018. Farmland Mapping and Monitoring Program. https://www.conservation.ca.gov/dlrp/fmmp.

Existing Farmland	1,733
Farmland Acreage at Buildout at 2045	0
Percent Reduction	-100%

Construction (Housing Permits)

Source: Housing and Urban Development (HUD). 2019. Accessed September 18, 2023. SOCDS Building Permits Database. https://socds.huduser.gov/permits/

Construction (Housing Units)

Source: U.S. Census Bureau. 2019. Accessed September 18, 2023. Table DP04:ACS 5-Year Estimates Data Profiles. https://data.census.gov/table?g=050XX00US06065_040XX00US06&tid=ACSDP5Y2019.DP04.

Employment

Source: U.S. Census Bureau. Longitudinal Employer-Household Dynamics. 2019 Q4. http://lehd.ces.census.gov/

Source: Chen Ryan Transportation, 2023

2019 Existing		**ROG Exhaust**	**NO_x Exhaust**	**CO Exhaust**	**SO_2 Exhaust**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust***	**CO2**
		lbs/year						MT/yr
Agricultural		4	23	23	0	1	1	470
Construction Equipment		18	165	198	0	8	8	3,927
Lawn & Garden		73	9	784	0	1	1	448
Light Commercial / Industrial Equipment		19	21	788	0	1	0	711
	TOTAL	115	219	1793	0	11	10	5,557

2045		**ROG Exhaust**	**NO_x Exhaust**	**CO Exhaust**	**SO2 Exhaust**	**PM10 Exhaust**	**PM2.5 Exhaust***	**CO2**
	Forecast Adjusted for:	lbs/year						MT/yr
Agricultural	Based on a reduction in Agricultural land in the City	0	0	0	0	0	0	0
Construction Equipment	Similar to historic	18	165	198	0	8	8	3,927
Lawn & Garden	Proportional to housing growth	127	17	1,372	0	2	1	785
Light Commercial / Industrial Equipment	Proportional to employment growth	40	44	1,635	0	1	1	1,474
	TOTAL	185	225	3,205	0	11	10	6,187

Wildomar OFFROAD2021

Source: https://arb.ca.gov/emfac/emissions-inventory/2f6c8fa1b8ec8bd9f8a4f23b3d84c74a77f77161
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 (v1.0.5) Emissions Inventory
Region Type: County
Region: Riverside
Calendar Year: 2019
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
Riverside	2019	Agricultural - Agricultural Tractors	Aggregate	Aggregate	Gasoline	337.302	0.000	0.000	0.001	0.000	0.000	0.000	0.010	3
Riverside	2019	Agricultural - Agricultural Tractors	Aggregate	Aggregate	Diesel	4,396,631.977	0.190	1.113	0.836	0.001	0.070	0.064	135.170	44,758
Riverside	2019	Agricultural - ATVs	Aggregate	Aggregate	Gasoline	136,324.641	0.034	0.018	0.349	0.000	0.001	0.001	4.206	1,393
Riverside	2019	Agricultural - ATVs	Aggregate	Aggregate	Diesel	76,658.009	0.003	0.016	0.016	0.000	0.001	0.001	2.357	780
Riverside	2019	Agricultural - ATVs	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Agricultural - Bale Wagons (Self Propelled)	Aggregate	Aggregate	Diesel	12,760.678	0.000	0.003	0.002	0.000	0.000	0.000	0.392	130
Riverside	2019	Agricultural - Balers (Self Propelled)	Aggregate	Aggregate	Diesel	1,023.376	0.000	0.000	0.000	0.000	0.000	0.000	0.031	10
Riverside	2019	Agricultural - Combine Harvesters	Aggregate	Aggregate	Diesel	86,373.194	0.002	0.019	0.013	0.000	0.001	0.001	2.655	879
Riverside	2019	Agricultural - Construction Equipment	Aggregate	Aggregate	Diesel	110,059.771	0.003	0.030	0.019	0.000	0.001	0.001	3.384	1,120
Riverside	2019	Agricultural - Cotton Pickers	Aggregate	Aggregate	Diesel	3,838.593	0.000	0.001	0.001	0.000	0.000	0.000	0.118	39
Riverside	2019	Agricultural - Forage & Silage Harvesters	Aggregate	Aggregate	Diesel	56,999.804	0.001	0.014	0.010	0.000	0.001	0.001	1.752	580
Riverside	2019	Agricultural - Forklifts	Aggregate	Aggregate	Diesel	76,725.066	0.003	0.021	0.016	0.000	0.001	0.001	2.359	781
Riverside	2019	Agricultural - Hay Squeeze/Stack Retriever	Aggregate	Aggregate	Diesel	14,277.675	0.000	0.003	0.002	0.000	0.000	0.000	0.439	145
Riverside	2019	Agricultural - Nut Harvester	Aggregate	Aggregate	Diesel	155,621.952	0.006	0.043	0.030	0.000	0.003	0.002	4.784	1,584
Riverside	2019	Agricultural - Other Harvesters	Aggregate	Aggregate	Diesel	130,427.340	0.004	0.031	0.021	0.000	0.002	0.001	4.010	1,328
Riverside	2019	Agricultural - Sprayers/Spray Rigs	Aggregate	Aggregate	Diesel	270,200.180	0.011	0.079	0.053	0.000	0.005	0.005	8.307	2,751
Riverside	2019	Agricultural - Swathers/Windrowers/Hay Conditioners	Aggregate	Aggregate	Diesel	47,918.978	0.002	0.012	0.008	0.000	0.001	0.001	1.473	488
TOTAL AGRICULTURAL OFFROAD (tons/yr)						5,576,178.535	0.261	1.403	1.378	0.002	0.086	0.079	171	56,771
ESTIMATED City of Wildomar (tons/year)							0.002	0.012	0.011	0.000	0.001	0.001	1.4	470
ESTIMATED City of Wildomar (lbs/year)							4.3	23.2	22.8	0.0	1.4	1.3		

AGRICULTURAL ACREAGE: https://storymaps.arcgis.com/stories/e2126e2424af49ec9406a0e7ffdb9de7	**2019**
Farmland Acreage in Riverside County	209,338
Farmland Acreage in City of Wildomar	1,733
Percent in the unincorporated County	**0.8%**

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
Riverside	2019	Construction and Mining - Bore/Drill Rigs	Aggregate	Aggregate	Diesel	352,197.712	0.003	0.044	0.032	0.000	0.002	0.001	10.828	3,585
Riverside	2019	Construction and Mining - Cranes	Aggregate	Aggregate	Diesel	838,157.668	0.021	0.241	0.138	0.000	0.011	0.010	25.768	8,532
Riverside	2019	Construction and Mining - Crawler Tractors	Aggregate	Aggregate	Diesel	2,071,537.349	0.050	0.557	0.291	0.001	0.027	0.025	63.687	21,088
Riverside	2019	Construction and Mining - Excavators	Aggregate	Aggregate	Diesel	3,727,411.094	0.049	0.506	0.412	0.001	0.021	0.019	114.595	37,945
Riverside	2019	Construction and Mining - Graders	Aggregate	Aggregate	Diesel	1,402,246.096	0.037	0.415	0.177	0.000	0.018	0.017	43.111	14,275
Riverside	2019	Construction and Mining - Misc - Asphalt Pavers	Aggregate	Aggregate	Gasoline	9,007.373	0.001	0.001	0.053	0.000	0.001	0.000	0.151	50
Riverside	2019	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	Aggregate	Gasoline	5,943.895	0.000	0.001	0.015	0.000	0.000	0.000	0.134	44
Riverside	2019	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	Aggregate	Diesel	36.849	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0
Riverside	2019	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	Aggregate	Gasoline	33,364.669	0.019	0.011	0.526	0.000	0.005	0.004	0.000	0
Riverside	2019	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	Aggregate	Diesel	53.705	0.000	0.001	0.001	0.000	0.000	0.000	0.002	1
Riverside	2019	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Gasoline	42,286.745	0.014	0.010	0.459	0.000	0.006	0.004	0.357	118
Riverside	2019	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Diesel	2,079.145	0.000	0.001	0.001	0.000	0.000	0.000	0.064	21
Riverside	2019	Construction and Mining - Misc - Cranes	Aggregate	Aggregate	Gasoline	4,956.700	0.000	0.000	0.008	0.000	0.000	0.000	0.119	39
Riverside	2019	Construction and Mining - Misc - Crushing/Proc. Equipment	Aggregate	Aggregate	Gasoline	206.984	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0
Riverside	2019	Construction and Mining - Misc - Dumpers/Tenders	Aggregate	Aggregate	Gasoline	3,462.401	0.002	0.001	0.050	0.000	0.001	0.000	0.008	3
Riverside	2019	Construction and Mining - Misc - Dumpers/Tenders	Aggregate	Aggregate	Diesel	4.301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Construction and Mining - Misc - Excavators	Aggregate	Aggregate	Diesel	30.782	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0
Riverside	2019	Construction and Mining - Misc - Other	Aggregate	Aggregate	Gasoline	7,595.650	0.000	0.000	0.006	0.000	0.000	0.000	0.191	63
Riverside	2019	Construction and Mining - Misc - Other	Aggregate	Aggregate	Diesel	113.687	0.000	0.002	0.001	0.000	0.000	0.000	0.003	1
Riverside	2019	Construction and Mining - Misc - Pavers	Aggregate	Aggregate	Diesel	8.076	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Construction and Mining - Misc - Paving Equipment	Aggregate	Aggregate	Gasoline	60,821.357	0.030	0.021	0.883	0.000	0.010	0.008	0.136	45
Riverside	2019	Construction and Mining - Misc - Paving Equipment	Aggregate	Aggregate	Diesel	13.748	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Construction and Mining - Misc - Plate Compactors	Aggregate	Aggregate	Gasoline	21,707.893	0.013	0.008	0.343	0.000	0.003	0.003	0.000	0
Riverside	2019	Construction and Mining - Misc - Plate Compactors	Aggregate	Aggregate	Diesel	38.414	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0
Riverside	2019	Construction and Mining - Misc - Rollers	Aggregate	Aggregate	Gasoline	30,299.855	0.007	0.006	0.225	0.000	0.002	0.002	0.429	142
Riverside	2019	Construction and Mining - Misc - Rollers	Aggregate	Aggregate	Diesel	236.288	0.001	0.004	0.003	0.000	0.000	0.000	0.007	2
Riverside	2019	Construction and Mining - Misc - Rough Terrain Forklifts	Aggregate	Aggregate	Gasoline	35,120.300	0.001	0.004	0.042	0.000	0.000	0.000	0.861	285
Riverside	2019	Construction and Mining - Misc - Rubber Tired Loaders	Aggregate	Aggregate	Gasoline	18,523.750	0.001	0.002	0.026	0.000	0.000	0.000	0.448	148
Riverside	2019	Construction and Mining - Misc - Rubber Tired Loaders	Aggregate	Aggregate	Diesel	5.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Construction and Mining - Misc - Signal Boards	Aggregate	Aggregate	Gasoline	620.931	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0

Riverside 2019	Construction and Mining - Misc - Signal Boards	Aggregate	Aggregate	Diesel	1,498.505	0.002	0.010	0.008	0.000	0.000	0.000	0.046	15
Riverside 2019	Construction and Mining - Misc - Skid Steer Loaders	Aggregate	Aggregate	Gasoline	67,052.857	0.010	0.008	0.327	0.000	0.003	0.003	1.229	407
Riverside 2019	Construction and Mining - Misc - Skid Steer Loaders	Aggregate	Aggregate	Diesel	1,625.831	0.006	0.034	0.019	0.000	0.001	0.001	0.050	17
Riverside 2019	Construction and Mining - Misc - Surfacing Equipment	Aggregate	Aggregate	Gasoline	26,642.784	0.016	0.012	0.418	0.000	0.005	0.004	0.000	0
Riverside 2019	Construction and Mining - Misc - Tampers/Rammers	Aggregate	Aggregate	Gasoline	1,185.066	0.001	0.000	0.019	0.000	0.000	0.000	0.000	0
Riverside 2019	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Gasoline	11,935.500	0.000	0.001	0.016	0.000	0.000	0.000	0.289	96
Riverside 2019	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	146.673	0.000	0.003	0.002	0.000	0.000	0.000	0.005	1
Riverside 2019	Construction and Mining - Misc - Trenchers	Aggregate	Aggregate	Gasoline	55,750.816	0.012	0.010	0.414	0.000	0.004	0.003	0.788	261
Riverside 2019	Construction and Mining - Misc - Trenchers	Aggregate	Aggregate	Diesel	198.402	0.001	0.004	0.002	0.000	0.000	0.000	0.006	2
Riverside 2019	Construction and Mining - Off-Highway Tractors	Aggregate	Aggregate	Diesel	788,037.372	0.016	0.137	0.110	0.000	0.007	0.007	24.227	8,022
Riverside 2019	Construction and Mining - Off-Highway Trucks	Aggregate	Aggregate	Diesel	4,727,477.494	0.080	0.897	0.455	0.001	0.031	0.028	145.341	48,126
Riverside 2019	Construction and Mining - Other	Aggregate	Aggregate	Diesel	1,055,176.870	0.021	0.220	0.136	0.000	0.011	0.010	32.440	10,742
Riverside 2019	Construction and Mining - Pavers	Aggregate	Aggregate	Diesel	248,540.831	0.005	0.051	0.037	0.000	0.003	0.003	7.641	2,530
Riverside 2019	Construction and Mining - Paving Equipment	Aggregate	Aggregate	Diesel	144,595.739	0.003	0.028	0.021	0.000	0.001	0.001	4.445	1,472
Riverside 2019	Construction and Mining - Rollers	Aggregate	Aggregate	Diesel	644,404.032	0.016	0.133	0.124	0.000	0.008	0.007	19.811	6,560
Riverside 2019	Construction and Mining - Rough Terrain Forklifts	Aggregate	Aggregate	Diesel	699,558.284	0.008	0.103	0.129	0.000	0.005	0.004	21.507	7,122
Riverside 2019	Construction and Mining - Rubber Tired Dozers	Aggregate	Aggregate	Diesel	413,545.087	0.015	0.151	0.104	0.000	0.008	0.007	12.714	4,210
Riverside 2019	Construction and Mining - Rubber Tired Loaders	Aggregate	Aggregate	Diesel	5,682,738.453	0.118	1.238	0.705	0.002	0.055	0.051	174.710	57,850
Riverside 2019	Construction and Mining - Scrapers	Aggregate	Aggregate	Diesel	3,701,229.216	0.077	0.916	0.543	0.001	0.037	0.034	113.790	37,679
Riverside 2019	Construction and Mining - Skid Steer Loaders	Aggregate	Aggregate	Diesel	677,635.501	0.009	0.109	0.129	0.000	0.005	0.004	20.833	6,898
Riverside 2019	Construction and Mining - Surfacing Equipment	Aggregate	Aggregate	Diesel	77,767.195	0.001	0.012	0.007	0.000	0.000	0.000	2.391	792
Riverside 2019	Construction and Mining - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	5,178,014.872	0.105	1.040	0.954	0.001	0.062	0.057	159.192	52,712
Riverside 2019	Construction and Mining - Trenchers	Aggregate	Aggregate	Diesel	213,999.682	0.007	0.054	0.041	0.000	0.004	0.003	6.579	2,179
TOTAL CONSTRUCTION OFFROAD (tons/yr)					33,086,845.494	0.779	7.010	8.426	0.009	0.360	0.324	1,009	334,083
ESTIMATED City of Wildomar (tons/year)						0.009	0.082	0.099	0.000	0.004	0.004	11.9	3,927
ESTIMATED City of Wildomar (lbs/year)						18.3	164.8	198.1	0.2	8.5	7.6		

TOTAL PERMITS: https://socds.huduser.gov/permits/		2015	2016	2017	2018	2019	Average
Housing Permits in Riverside County		6158	6996	8,001	9,232	8,992	7,876
Housing Permits in the City of Wildomar		113	173	83	42	7	84
Percent in Wildomar		2%	2%	1%	0%	0%	**1.2%**

Industrial and Light Commercial

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
Riverside	2019	Industrial - Aerial Lifts	Aggregate	Aggregate	Diesel	89,533.409	0.001	0.012	0.016	0.000	0.000	0.000	2.753	911
Riverside	2019	Industrial - Forklifts	Aggregate	Aggregate	Diesel	376,971.777	0.011	0.096	0.080	0.000	0.007	0.006	11.590	3,838
Riverside	2019	Industrial - Misc - Aerial Lifts	Aggregate	Aggregate	Gasoline	39,596.500	0.003	0.003	0.112	0.000	0.001	0.001	0.862	285
Riverside	2019	Industrial - Misc - Aerial Lifts	Aggregate	Aggregate	Diesel	62.492	0.000	0.001	0.001	0.000	0.000	0.000	0.002	1
Riverside	2019	Industrial - Misc - Aerial Lifts	Aggregate	Aggregate	Electric	851.780	0.000	0.000	0.016	0.000	0.000	0.000	0.000	0
Riverside	2019	Industrial - Misc - Forklifts	Aggregate	Aggregate	Gasoline	1,252,425.843	0.027	0.123	2.903	0.000	0.002	0.001	28.431	9,414
Riverside	2019	Industrial - Misc - Forklifts	Aggregate	Aggregate	Electric	94.191	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0
Riverside	2019	Industrial - Misc - Forklifts	Aggregate	Aggregate	Nat Gas	3,125,027.800	0.000	0.246	2.275	0.000	0.005	0.000	56.587	18,737
Riverside	2019	Industrial - Misc - Other General Industrial Equipment	Aggregate	Aggregate	Gasoline	21,252.843	0.001	0.002	0.106	0.000	0.000	0.000	0.392	130
Riverside	2019	Industrial - Misc - Other General Industrial Equipment	Aggregate	Aggregate	Diesel	48.347	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0
Riverside	2019	Industrial - Misc - Other Material Handling Equipment	Aggregate	Aggregate	Gasoline	9,344.000	0.000	0.001	0.010	0.000	0.000	0.000	0.232	77
Riverside	2019	Industrial - Misc - Sweepers/Scrubbers	Aggregate	Aggregate	Gasoline	71,145.527	0.002	0.005	0.152	0.000	0.000	0.000	1.635	542
Riverside	2019	Industrial - Misc - Sweepers/Scrubbers	Aggregate	Aggregate	Diesel	12.385	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Industrial - Other General Industrial Equipment	Aggregate	Aggregate	Diesel	182,066.552	0.005	0.037	0.032	0.000	0.002	0.002	5.597	1,853
Riverside	2019	Industrial - Other Material Handling Equipment	Aggregate	Aggregate	Diesel	106,746.068	0.002	0.021	0.014	0.000	0.001	0.001	3.282	1,087
Riverside	2019	Light Commercial - Misc - Air Compressors	Aggregate	Aggregate	Gasoline	1,452,824.057	0.179	0.111	9.570	0.000	0.001	0.001	23.246	7,697
Riverside	2019	Light Commercial - Misc - Air Compressors	Aggregate	Aggregate	Diesel	35,122.978	0.002	0.008	0.009	0.000	0.000	0.000	1.080	358
Riverside	2019	Light Commercial - Misc - Air Compressors	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Light Commercial - Misc - Gas Compressors	Aggregate	Aggregate	Nat Gas	418,322.850	0.000	0.024	0.279	0.000	0.000	0.000	7.618	2,523
Riverside	2019	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Gasoline	2,348,513.615	0.516	0.198	13.972	0.001	0.002	0.003	39.148	12,963
Riverside	2019	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Diesel	195,211.229	0.007	0.046	0.036	0.000	0.002	0.002	6.002	1,987
Riverside	2019	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Nat Gas	13,399.150	0.000	0.001	0.007	0.000	0.000	0.000	0.248	82
Riverside	2019	Light Commercial - Misc - Pressure Washers	Aggregate	Aggregate	Gasoline	1,031,221.333	0.129	0.058	7.043	0.000	0.000	0.001	16.133	5,342
Riverside	2019	Light Commercial - Misc - Pressure Washers	Aggregate	Aggregate	Diesel	1,009.237	0.000	0.000	0.000	0.000	0.000	0.000	0.031	10
Riverside	2019	Light Commercial - Misc - Pressure Washers	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Light Commercial - Misc - Pumps	Aggregate	Aggregate	Gasoline	299,063.097	0.041	0.021	1.391	0.000	0.000	0.000	5.653	1,872
Riverside	2019	Light Commercial - Misc - Pumps	Aggregate	Aggregate	Diesel	106,426.074	0.004	0.025	0.021	0.000	0.001	0.001	3.272	1,083
Riverside	2019	Light Commercial - Misc - Pumps	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Light Commercial - Misc - Welders	Aggregate	Aggregate	Gasoline	634,769.228	0.089	0.043	4.110	0.000	0.000	0.001	10.212	3,381
Riverside	2019	Light Commercial - Misc - Welders	Aggregate	Aggregate	Diesel	191,680.943	0.008	0.045	0.044	0.000	0.002	0.002	5.893	1,951
Riverside	2019	Light Commercial - Misc - Welders	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
TOTAL LIGHT COMMERCIAL + INDUSTRIAL OFFROAD (tons/yr)						12,002,743.306	1.027	1.128	42.201	0.002	0.029	0.023	230	76,125
ESTIMATED City of Wildomar (tons/year)							0.010	0.011	0.394	0.000	0.000	0.000	2.147	711
ESTIMATED City of Wildomar (lbs/year)							19.18	21.07	788.15	0.04	0.54	0.43		

EMPLOYMENT https://ledextract.ces.census.gov/qwi/all	**2019**
Employment in Riverside County	625,513
Employment in City of Wildomar	5,841
Percent in Wildomar	**0.9%**

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
Riverside	2019	Lawn and Garden - Misc - Chainsaws	Aggregate	Aggregate	Gasoline	397,507.116	0.457	0.014	1.343	0.000	0.006	0.004	6.966	2,307
Riverside	2019	Lawn and Garden - Misc - Chainsaws	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Lawn and Garden - Misc - Chainsaws Preempt	Aggregate	Aggregate	Gasoline	233,465.996	0.397	0.014	0.723	0.000	0.003	0.002	3.751	1,242
Riverside	2019	Lawn and Garden - Misc - Chainsaws Preempt	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Lawn and Garden - Misc - Chippers/Stump Grinders	Aggregate	Aggregate	Gasoline	4,008.751	0.001	0.000	0.026	0.000	0.000	0.000	0.064	21
Riverside	2019	Lawn and Garden - Misc - Chippers/Stump Grinders	Aggregate	Aggregate	Diesel	253.346	0.000	0.000	0.000	0.000	0.000	0.000	0.008	3
Riverside	2019	Lawn and Garden - Misc - Chippers/Stump Grinders	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Lawn and Garden - Misc - Lawn Mowers	Aggregate	Aggregate	Gasoline	941,131.400	0.138	0.075	5.386	0.000	0.004	0.003	16.292	5,395
Riverside	2019	Lawn and Garden - Misc - Lawn Mowers	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Lawn and Garden - Misc - Leaf Blowers/Vacuums	Aggregate	Aggregate	Gasoline	1,031,375.810	0.754	0.026	3.687	0.000	0.011	0.008	19.254	6,375
Riverside	2019	Lawn and Garden - Misc - Leaf Blowers/Vacuums	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Lawn and Garden - Misc - Other	Aggregate	Aggregate	Gasoline	19,207.485	0.002	0.001	0.122	0.000	0.000	0.000	0.316	105
Riverside	2019	Lawn and Garden - Misc - Other	Aggregate	Aggregate	Diesel	127.075	0.000	0.000	0.000	0.000	0.000	0.000	0.004	1
Riverside	2019	Lawn and Garden - Misc - Rear Engine Riding Mowers	Aggregate	Aggregate	Gasoline	1,770,410.541	0.276	0.135	12.174	0.000	0.002	0.002	27.382	9,067
Riverside	2019	Lawn and Garden - Misc - Rear Engine Riding Mowers	Aggregate	Aggregate	Diesel	101,805.255	0.004	0.023	0.014	0.000	0.001	0.001	3.130	1,036
Riverside	2019	Lawn and Garden - Misc - Rear Engine Riding Mowers	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Lawn and Garden - Misc - Snowblowers	Aggregate	Aggregate	Gasoline	637.636	0.000	0.000	0.005	0.000	0.000	0.000	0.010	3
Riverside	2019	Lawn and Garden - Misc - Snowblowers	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Lawn and Garden - Misc - Tillers	Aggregate	Aggregate	Gasoline	18,007.264	0.006	0.001	0.100	0.000	0.000	0.000	0.306	101
Riverside	2019	Lawn and Garden - Misc - Tillers	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Lawn and Garden - Misc - Trimmers/Edgers/Brush Cutters	Aggregate	Aggregate	Gasoline	779,515.845	0.485	0.029	2.848	0.000	0.004	0.003	14.748	4,883
Riverside	2019	Lawn and Garden - Misc - Trimmers/Edgers/Brush Cutters	Aggregate	Aggregate	Electric	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Riverside	2019	Lawn and Garden - Misc - Wood Splitters	Aggregate	Aggregate	Gasoline	166,539.216	0.029	0.012	1.054	0.000	0.000	0.000	2.708	897
TOTAL LAWN & GARDEN (tons/yr)						5,463,992.735	2.550	0.331	27.483	0.001	0.032	0.024	95	31,436
ESTIMATED City of Wildomar (tons/year)							0.036	0.005	0.392	0.000	0.000	0.000	1.354	448
ESTIMATED City of WIldomar (lbs/day)							73	9	784	0	1	1		

HOUSING UNITS https://data.census.gov/table?g=050XX00US06065_040XX00US06&tid=ACSDP5Y2019.DP04	**2019**
Housing Units in Riverside County (2019)	840,501
Housing Units in City of Wildomar	11,988
Percent in Wildomar	**1.4%**

Wildomar VMT

Source: Chen Ryan Transportation 2023.

	Daily VMT		Total Daily VMT	Total with RTAC	Residents	Jobs	Service Population	VMT/SP	VMT/SP w RTAC
	Wildomar Internal OD VMT	Wildomar External OD VMT							
Existing	360,111	1,087,978	1,448,089	904,100	37,326	5,841	43,167	33.5	20.9
Current General Plan	584,371	1,474,386	2,058,757	1,321,564	60,045	9,516	69,561	29.6	19.0
2045	607,229	1,689,240	2,296,469	1,451,849	65,325	12,115	77,440	29.7	18.7

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

Modeling of vehicle miles traveled (VMT) is provided by Chen Ryan Transportation is based on the RIVCOM 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 two types of trips:

» Internal OD VMT include vehicle trips that originated and terminated within the City boundary.

» External OD VMT includes vehicle trips that either originated or terminated (but not both) within the City.

Percent VMT from Housing assumes trip lengths for residential and non-residential land uses are similar.

Wildomar — TRANSPORTATION SECTOR

Source: EMFAC2021 V. 1.0.2. , Web Database - Emissions Rates. Sub-Area Riverside (SC). 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	70	780	2,559	8	61	28
Existing in year 2045	11	167	930	6	51	18
Proposed GP 2045	18	268	1,493	9	82	29
Change from Existing Land Uses (2045 Emission Rates)	**-7**	**-101**	**-563**	**-3**	**-31**	**-11**
Change from Existing Conditions (2019-2045)	-52	-512	-1,066	1	21	1
Current General Plan (2045)	17	244	1,359	8	74	27
Change from Current General Plan	2	24	134	1	7	3

GHG EMISSIONS

	MTons/year			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Existing	134,650	3	7	136,705
Current GP	134,971	1	7	136,901
Proposed GP 2045	148,277	1	8	150,397
Change from Existing	**13,627**	**-1**	**0**	**13,692**
Change from Current GP	13,306	0	1	13,496

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

Year 2019 Existing: Criteria Air Pollutants

Source: EMFAC2021 (v1.0.2) Emission Rates, Riverside (SC) Sub-Area, Average Speed, Average Fleet

Daily VMT	904,100			lbs/day					
Vehicle Type	**Fuel Type**	**Percent of VMT**	**Adjusted Percent VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
All Other Buses	Diesel	0.02%	0.02%	0.26	3.86	0.75	0.00	0.19	0.17
All Other Buses	Natural Gas	0.00%	0.00%	0.00	0.01	0.14	0.00	0.00	0.00
LDA	Gasoline	49.79%	49.79%	14.81	63.56	991.66	2.98	16.27	5.73
LDA	Diesel	0.19%	0.19%	0.11	0.97	1.23	0.01	0.13	0.08
LDA	Electricity	0.37%	0.37%	0.00	0.00	0.00	0.00	0.09	0.03
LDA	Plug-in Hybrid	0.89%	0.89%	0.03	0.06	4.27	0.03	0.22	0.07
LDT1	Gasoline	4.08%	4.08%	5.58	24.16	242.06	0.29	1.59	0.63
LDT1	Diesel	0.00%	0.00%	0.01	0.05	0.06	0.00	0.01	0.01
LDT1	Electricity	0.00%	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	0.00
LDT2	Gasoline	18.07%	18.07%	7.54	46.62	465.36	1.37	6.33	2.25
LDT2	Diesel	0.05%	0.05%	0.02	0.10	0.16	0.00	0.03	0.02
LDT2	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT2	Plug-in Hybrid	0.03%	0.03%	0.00	0.00	0.13	0.00	0.01	0.00
LHD1	Gasoline	1.63%	1.63%	1.29	8.88	43.83	0.23	2.83	0.99
LHD1	Diesel	1.47%	1.47%	4.04	79.88	14.25	0.14	3.65	1.86
LHD2	Gasoline	0.23%	0.23%	0.11	0.98	4.33	0.03	0.46	0.16
LHD2	Diesel	0.64%	0.64%	1.51	25.58	4.46	0.07	1.71	0.82
MCY	Gasoline	0.38%	0.38%	9.68	4.83	113.52	0.01	0.13	0.05
MDV	Gasoline	15.77%	15.77%	11.31	64.00	534.13	1.46	5.63	2.01
MDV	Diesel	0.27%	0.27%	0.11	1.30	1.60	0.02	0.15	0.09
MDV	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
MDV	Plug-in Hybrid	0.06%	0.06%	0.00	0.00	0.29	0.00	0.02	0.01
MH	Gasoline	0.14%	0.14%	0.22	1.32	7.19	0.05	0.16	0.05
MH	Diesel	0.05%	0.05%	0.07	4.46	0.34	0.01	0.21	0.16
Motor Coach	Diesel	0.01%	0.01%	0.04	1.04	0.16	0.00	0.05	0.03
OBUS	Gasoline	0.04%	0.04%	0.06	0.49	1.50	0.01	0.04	0.01
PTO	Diesel	0.11%	0.11%	0.65	12.80	2.27	0.05	0.21	0.20
SBUS	Gasoline	0.04%	0.04%	0.15	0.47	3.19	0.01	0.04	0.02
SBUS	Diesel	0.03%	0.03%	0.09	5.10	0.22	0.01	0.07	0.04
SBUS	Natural Gas	0.02%	0.02%	0.03	0.47	8.37	0.00	0.03	0.01
T6 CAIRP Class 4	Diesel	0.00%	0.00%	0.00	0.03	0.00	0.00	0.00	0.00
T6 CAIRP Class 5	Diesel	0.00%	0.00%	0.00	0.03	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Diesel	0.00%	0.00%	0.00	0.10	0.01	0.00	0.01	0.00
T6 CAIRP Class 7	Diesel	0.01%	0.01%	0.02	0.66	0.09	0.00	0.04	0.02
T6 CAIRP Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Diesel	0.03%	0.03%	0.19	4.16	0.68	0.01	0.18	0.15
T6 Instate Delivery Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	0.03%	0.03%	0.09	1.99	0.34	0.01	0.11	0.08
T6 Instate Delivery Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	0.09%	0.09%	0.37	8.38	1.32	0.02	0.39	0.31
T6 Instate Delivery Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.02	0.00	0.00	0.00
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	0.06	2.09	0.21	0.00	0.07	0.05
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Instate Other Class 4	Diesel	0.14%	0.14%	0.75	16.27	2.71	0.03	0.75	0.62
T6 Instate Other Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Instate Other Class 5	Diesel	0.36%	0.36%	0.71	15.60	2.80	0.08	1.02	0.73
T6 Instate Other Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.03	0.00	0.00	0.00
T6 Instate Other Class 6	Diesel	0.25%	0.25%	0.89	19.15	3.28	0.05	1.00	0.79
T6 Instate Other Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.03	0.00	0.00	0.00
T6 Instate Other Class 7	Diesel	0.13%	0.13%	0.46	11.06	1.42	0.03	0.47	0.36
T6 Instate Other Class 7	Natural Gas	0.00%	0.00%	0.00	0.01	0.10	0.00	0.00	0.00
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	0.01	0.22	0.03	0.00	0.01	0.01
T6 Instate Tractor Class 7	Diesel	0.06%	0.06%	0.16	4.82	0.55	0.01	0.18	0.13
T6 Instate Tractor Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.03	0.00	0.00	0.00
T6 OOS Class 4	Diesel	0.00%	0.00%	0.00	0.02	0.00	0.00	0.00	0.00

T6 OOS Class 5	Diesel	0.00%	0.00%	0.00	0.02	0.00	0.00	0.00	0.00
T6 OOS Class 6	Diesel	0.00%	0.00%	0.00	0.06	0.01	0.00	0.00	0.00
T6 OOS Class 7	Diesel	0.01%	0.01%	0.02	0.46	0.06	0.00	0.02	0.02
T6 Public Class 4	Diesel	0.01%	0.01%	0.01	1.18	0.02	0.00	0.01	0.01
T6 Public Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Public Class 5	Diesel	0.01%	0.01%	0.01	0.87	0.02	0.00	0.02	0.01
T6 Public Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.08	0.00	0.00	0.00
T6 Public Class 6	Diesel	0.02%	0.02%	0.02	2.82	0.06	0.00	0.03	0.02
T6 Public Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.03	0.00	0.00	0.00
T6 Public Class 7	Diesel	0.03%	0.03%	0.06	6.54	0.15	0.01	0.08	0.05
T6 Public Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.05	0.00	0.00	0.00
T6 Utility Class 5	Diesel	0.02%	0.02%	0.00	0.37	0.02	0.00	0.02	0.01
T6 Utility Class 5	Natural Gas	0.00%	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	0.11	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	0.00
T6 Utility Class 7	Diesel	0.00%	0.00%	0.00	0.14	0.01	0.00	0.01	0.00
T6 Utility Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.13%	0.13%	0.35	2.30	9.55	0.04	0.14	0.05
T7 CAIRP Class 8	Diesel	0.81%	0.81%	1.31	56.28	4.95	0.24	2.88	1.59
T7 CAIRP Class 8	Natural Gas	0.00%	0.00%	0.00	0.02	0.47	0.00	0.01	0.00
T7 NNOOS Class 8	Diesel	0.97%	0.97%	2.57	71.96	10.58	0.29	4.26	2.67
T7 NOOS Class 8	Diesel	0.35%	0.35%	0.66	25.46	2.49	0.10	1.30	0.74
T7 POLA Class 8	Diesel	0.56%	0.56%	0.85	50.34	2.57	0.17	1.72	0.80
T7 POLA Class 8	Natural Gas	0.03%	0.03%	0.01	0.26	4.97	0.00	0.06	0.02
T7 Public Class 8	Diesel	0.07%	0.07%	0.12	17.48	0.50	0.02	0.29	0.17
T7 Public Class 8	Natural Gas	0.01%	0.01%	0.00	0.10	1.93	0.00	0.03	0.01
T7 Single Concrete/Transit Mix Class 8	Diesel	0.22%	0.22%	0.30	10.13	1.42	0.07	0.85	0.50
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.01%	0.01%	0.00	0.09	1.58	0.00	0.03	0.01
T7 Single Dump Class 8	Diesel	0.17%	0.17%	0.37	14.36	1.46	0.05	0.67	0.39
T7 Single Dump Class 8	Natural Gas	0.01%	0.01%	0.00	0.08	1.38	0.00	0.03	0.01
T7 Single Other Class 8	Diesel	0.15%	0.15%	0.50	15.20	2.00	0.05	0.74	0.48
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	0.00	0.06	1.18	0.00	0.02	0.01
T7 SWCV Class 8	Diesel	0.02%	0.02%	0.00	5.00	0.00	0.01	0.08	0.03
T7 SWCV Class 8	Natural Gas	0.01%	0.01%	0.03	0.71	2.00	0.00	0.06	0.02
T7 Tractor Class 8	Diesel	0.66%	0.66%	1.51	59.60	5.78	0.20	2.62	1.53
T7 Tractor Class 8	Natural Gas	0.02%	0.02%	0.00	0.11	2.06	0.00	0.03	0.01
T7 Utility Class 8	Diesel	0.01%	0.01%	0.01	0.56	0.02	0.00	0.04	0.01
T7IS	Gasoline	0.00%	0.00%	0.08	0.36	3.18	0.00	0.00	0.00
UBUS	Gasoline	0.04%	0.04%	0.01	0.13	0.36	0.01	0.10	0.04
UBUS	Diesel	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Natural Gas	0.08%	0.08%	0.03	0.99	39.13	0.00	0.21	0.07
	TOTAL	100%	100%	70	780	2,559	8	61	28

Year 2019 Existing: Greenhouse Gas Emissions

Source: EMFAC2021 (v1.0.2) Emission Rates, Riverside (SC) Sub-Area, Average Speed, Average Fleet

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 (Pavley)	CH_4	N_2O	
Daily VMT	904,100			AR5 GWP	AR5 GWP	AR5 GWP	
Annual VMT	313,722,700			1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**Adjusted Percent VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
All Other Buses	Diesel	0.02%	0.02%	83	0.00	0.01	87
All Other Buses	Natural Gas	0.00%	0.00%	8	0.00	0.00	9
LDA	Gasoline	49.79%	49.79%	47,389	0.58	0.95	47,657
LDA	Diesel	0.19%	0.19%	143	0.00	0.02	149
LDA	Electricity	0.37%	0.37%	0	0.00	0.00	0
LDA	Plug-in Hybrid	0.89%	0.89%	413	0.00	0.00	413
LDT1	Gasoline	4.08%	4.08%	4,651	0.19	0.24	4,721
LDT1	Diesel	0.00%	0.00%	2	0.00	0.00	2
LDT1	Electricity	0.00%	0.00%	0	0.00	0.00	0
LDT1	Plug-in Hybrid	0.00%	0.00%	0	0.00	0.00	0
LDT2	Gasoline	18.07%	18.07%	21,869	0.28	0.53	22,018
LDT2	Diesel	0.05%	0.05%	53	0.00	0.01	55
LDT2	Electricity	0.00%	0.00%	0	0.00	0.00	0
LDT2	Plug-in Hybrid	0.03%	0.03%	13	0.00	0.00	13
LHD1	Gasoline	1.63%	1.63%	3,600	0.04	0.08	3,623
LHD1	Diesel	1.47%	1.47%	2,296	0.03	0.36	2,393
LHD2	Gasoline	0.23%	0.23%	552	0.00	0.01	554
LHD2	Diesel	0.64%	0.64%	1,218	0.01	0.19	1,270
MCY	Gasoline	0.38%	0.38%	227	0.22	0.05	247
MDV	Gasoline	15.77%	15.77%	23,177	0.38	0.66	23,362
MDV	Diesel	0.27%	0.27%	387	0.00	0.06	403
MDV	Electricity	0.00%	0.00%	0	0.00	0.00	0
MDV	Plug-in Hybrid	0.06%	0.06%	28	0.00	0.00	28
MH	Gasoline	0.14%	0.14%	790	0.01	0.01	793
MH	Diesel	0.05%	0.05%	150	0.00	0.02	157
Motor Coach	Diesel	0.01%	0.01%	68	0.00	0.01	70
OBUS	Gasoline	0.04%	0.04%	218	0.00	0.00	219
PTO	Diesel	0.11%	0.11%	773	0.00	0.12	805
SBUS	Gasoline	0.04%	0.04%	113	0.00	0.00	114
SBUS	Diesel	0.03%	0.03%	115	0.00	0.02	119
SBUS	Natural Gas	0.02%	0.02%	131	0.37	0.03	148
T6 CAIRP Class 4	Diesel	0.00%	0.00%	2	0.00	0.00	2
T6 CAIRP Class 5	Diesel	0.00%	0.00%	3	0.00	0.00	3
T6 CAIRP Class 6	Diesel	0.00%	0.00%	8	0.00	0.00	8
T6 CAIRP Class 7	Diesel	0.01%	0.01%	48	0.00	0.01	50
T6 CAIRP Class 7	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Instate Delivery Class 4	Diesel	0.03%	0.03%	115	0.00	0.02	119
T6 Instate Delivery Class 4	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Instate Delivery Class 5	Diesel	0.03%	0.03%	112	0.00	0.02	117
T6 Instate Delivery Class 5	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Instate Delivery Class 6	Diesel	0.09%	0.09%	311	0.00	0.05	325
T6 Instate Delivery Class 6	Natural Gas	0.00%	0.00%	1	0.00	0.00	1
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	71	0.00	0.01	74
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.00%	1	0.00	0.00	1
T6 Instate Other Class 4	Diesel	0.14%	0.14%	488	0.01	0.08	508
T6 Instate Other Class 4	Natural Gas	0.00%	0.00%	0	0.00	0.00	1
T6 Instate Other Class 5	Diesel	0.36%	0.36%	1,253	0.01	0.20	1,306
T6 Instate Other Class 5	Natural Gas	0.00%	0.00%	2	0.00	0.00	2
T6 Instate Other Class 6	Diesel	0.25%	0.25%	859	0.01	0.14	895
T6 Instate Other Class 6	Natural Gas	0.00%	0.00%	1	0.00	0.00	2
T6 Instate Other Class 7	Diesel	0.13%	0.13%	455	0.00	0.07	474
T6 Instate Other Class 7	Natural Gas	0.00%	0.00%	6	0.00	0.00	7
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	6	0.00	0.00	7
T6 Instate Tractor Class 7	Diesel	0.06%	0.06%	183	0.00	0.03	191
T6 Instate Tractor Class 7	Natural Gas	0.00%	0.00%	2	0.00	0.00	2
T6 OOS Class 4	Diesel	0.00%	0.00%	1	0.00	0.00	1
T6 OOS Class 5	Diesel	0.00%	0.00%	2	0.00	0.00	2

T6 OOS Class 6	Diesel	0.00%	0.00%	5	0.00	0.00	5
T6 OOS Class 7	Diesel	0.01%	0.01%	32	0.00	0.01	34
T6 Public Class 4	Diesel	0.01%	0.01%	23	0.00	0.00	24
T6 Public Class 4	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Public Class 5	Diesel	0.01%	0.01%	36	0.00	0.01	38
T6 Public Class 5	Natural Gas	0.00%	0.00%	4	0.00	0.00	5
T6 Public Class 6	Diesel	0.02%	0.02%	53	0.00	0.01	55
T6 Public Class 6	Natural Gas	0.00%	0.00%	2	0.00	0.00	2
T6 Public Class 7	Diesel	0.03%	0.03%	115	0.00	0.02	120
T6 Public Class 7	Natural Gas	0.00%	0.00%	3	0.00	0.00	3
T6 Utility Class 5	Diesel	0.02%	0.02%	57	0.00	0.01	60
T6 Utility Class 5	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Utility Class 6	Diesel	0.00%	0.00%	11	0.00	0.00	11
T6 Utility Class 6	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Utility Class 7	Diesel	0.00%	0.00%	15	0.00	0.00	16
T6 Utility Class 7	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6TS	Gasoline	0.13%	0.13%	678	0.01	0.02	682
T7 CAIRP Class 8	Diesel	0.81%	0.81%	4,040	0.01	0.64	4,209
T7 CAIRP Class 8	Natural Gas	0.00%	0.00%	12	0.01	0.00	13
T7 NNOOS Class 8	Diesel	0.97%	0.97%	4,836	0.02	0.76	5,039
T7 NOOS Class 8	Diesel	0.35%	0.35%	1,744	0.00	0.27	1,817
T7 POLA Class 8	Diesel	0.56%	0.56%	2,851	0.01	0.45	2,970
T7 POLA Class 8	Natural Gas	0.03%	0.03%	106	0.07	0.02	114
T7 Public Class 8	Diesel	0.07%	0.07%	375	0.00	0.06	391
T7 Public Class 8	Natural Gas	0.01%	0.01%	47	0.03	0.01	51
T7 Single Concrete/Transit Mix Cl	Diesel	0.22%	0.22%	1,120	0.00	0.18	1,166
T7 Single Concrete/Transit Mix Cl	Natural Gas	0.01%	0.01%	50	0.04	0.01	54
T7 Single Dump Class 8	Diesel	0.17%	0.17%	862	0.00	0.14	898
T7 Single Dump Class 8	Natural Gas	0.01%	0.01%	43	0.03	0.01	47
T7 Single Other Class 8	Diesel	0.15%	0.15%	790	0.00	0.12	823
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	36	0.03	0.01	39
T7 SWCV Class 8	Diesel	0.02%	0.02%	188	0.00	0.03	196
T7 SWCV Class 8	Natural Gas	0.01%	0.01%	45	0.08	0.01	49
T7 Tractor Class 8	Diesel	0.66%	0.66%	3,244	0.01	0.51	3,380
T7 Tractor Class 8	Natural Gas	0.02%	0.02%	58	0.04	0.01	62
T7 Utility Class 8	Diesel	0.01%	0.01%	71	0.00	0.01	73
T7IS	Gasoline	0.00%	0.00%	13	0.00	0.00	13
UBUS	Gasoline	0.04%	0.04%	214	0.00	0.00	215
UBUS	Diesel	0.00%	0.00%	0	0.00	0.00	0
UBUS	Electricity	0.00%	0.00%	0	0.00	0.00	0
UBUS	Natural Gas	0.08%	0.08%	471	0.35	0.10	506
		100%	100%	134650.18	2.93	7.44	136704.82

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: Riverside (SC)
Calendar Year: 2019
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																	
Vehicle Category	Fuel	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	VMT Total	% of VMT
All Other Buses	Diesel	0.5145982	7.7868259	1.5046591	0.0100653	0.3314315	0.012	0.0420527	0.3854842	0.3170939	0.003	0.0147184	0.3348123	1063.8816	0.0239018	0.1674643	10137.17451	0.02%
All Other Buses	Natural Gas	0.0055372	0.1330656	2.1890906	0	0.000482	0.012	0.0420527	0.0545347	0.0004432	0.003	0.0147184	0.0181616	785.12487	0.3875387	0.1600528	1316.989021	0.00%
LDA	Gasoline	0.014926	0.0640451	0.9992264	0.0030021	0.0014596	0.008	0.0069336	0.0163932	0.0013421	0.002	0.0024268	0.0057689	303.3751	0.0036949	0.0060895	20289766.96	49.79%
LDA	Diesel	0.0291454	0.2587594	0.328023	0.0022976	0.0184631	0.008	0.0069415	0.0334045	0.0176644	0.002	0.0024295	0.0220939	242.69564	0.0013537	0.0382024	76593.90777	0.19%
LDA	Electricity	0	0	0	0	0	0.008	0.00436	0.01236	0	0.002	0.001526	0.003526	0	0	0	149964.7737	0.37%
LDA	Plug-in Hybrid	0.0014303	0.0032458	0.2409384	0.0014639	0.0009185	0.008	0.0037304	0.0126489	0.0008446	0.002	0.0013056	0.0041502	147.93607	0.0004671	0.000625	362225.3813	0.89%
LDT1	Gasoline	0.0687321	0.2973746	2.9792592	0.003599	0.0030994	0.008	0.0084622	0.0195616	0.0028505	0.002	0.0029618	0.0078122	363.69535	0.014924	0.0191102	1661078.377	4.08%
LDT1	Diesel	0.3167927	1.574759	2.0815786	0.0039291	0.2426005	0.008	0.0096111	0.2602116	0.2321057	0.002	0.0033639	0.2374696	415.03135	0.0147144	0.0653296	628.0422794	0.00%
LDT1	Electricity	0	0	0	0	0	0.008	0.0044058	0.0124058	0	0.002	0.001542	0.003542	0	0	0	469.8365772	0.00%
LDT1	Plug-in Hybrid	0.0014357	0.0032581	0.2421906	0.0014701	0.0010674	0.008	0.0037257	0.0127931	0.0009814	0.002	0.001304	0.0042854	148.5624	0.0004703	0.000631	14.26208366	0.00%
LDT2	Gasoline	0.0209287	0.1294635	1.2923877	0.0038184	0.0015655	0.008	0.0080163	0.0175818	0.0014397	0.002	0.0028057	0.0062454	385.87018	0.0049732	0.0093482	7361640.798	18.07%
LDT2	Diesel	0.0221931	0.1039474	0.1588355	0.0031888	0.0119847	0.008	0.0076248	0.0276095	0.0114662	0.002	0.0026687	0.0161349	336.83669	0.0010308	0.053021	20539.96241	0.05%
LDT2	Electricity	0	0	0	0	0	0.008	0.0043479	0.0123479	0	0.002	0.0015218	0.0035218	0	0	0	404.3923381	0.00%
LDT2	Plug-in Hybrid	0.0014084	0.0031961	0.2382226	0.0014434	0.0010364	0.008	0.003729	0.0127654	0.000953	0.002	0.0013051	0.0042581	145.86213	0.0004634	0.000624	11465.07498	0.03%
LHD1	Gasoline	0.0396375	0.2737261	1.3512577	0.0069792	0.001229	0.008	0.078	0.0872291	0.0011312	0.002	0.0273	0.0304312	705.28264	0.007868	0.0155372	663077.8331	1.63%
LHD1	Diesel	0.1378513	2.7226175	0.4855618	0.0047068	0.0345622	0.012	0.078	0.1245622	0.0330671	0.003	0.0273	0.0633671	497.18034	0.0064029	0.0782605	599853.3341	1.47%
LHD2	Gasoline	0.0234934	0.2129268	0.9427709	0.0075439	0.0010243	0.008	0.091	0.1000244	0.0009418	0.002	0.03185	0.0347918	762.34794	0.005024	0.0129679	93989.36526	0.23%
LHD2	Diesel	0.1173559	1.9911391	0.3469173	0.005704	0.0299005	0.012	0.091	0.1329005	0.028607	0.003	0.03185	0.063457	602.51151	0.005451	0.0948406	262680.9269	0.64%
MCY	Gasoline	1.2795942	0.6385617	15.012012	0.0018911	0.0017583	0.004	0.012	0.0177583	0.0016496	0.001	0.0042	0.0068496	191.10761	0.1880802	0.0423434	154595.7773	0.38%
MDV	Gasoline	0.0359834	0.2035788	1.6989245	0.0046349	0.0016322	0.008	0.0082842	0.0179163	0.0015021	0.002	0.0028995	0.0064016	468.37628	0.0077569	0.0132729	6427632.001	15.77%
MDV	Diesel	0.0209604	0.2385646	0.2940744	0.004265	0.0117883	0.008	0.0079334	0.0277217	0.0112783	0.002	0.0027767	0.016055	450.51245	0.0009736	0.0709146	111469.9276	0.27%
MDV	Electricity	0	0	0	0	0	0.008	0.004421	0.012421	0	0.002	0.0015474	0.0035474	0	0	0	140.7680375	0.00%
MDV	Plug-in Hybrid	0.0014314	0.0032482	0.2416884	0.0014661	0.0010701	0.008	0.0037239	0.012794	0.0009839	0.002	0.0013034	0.0042873	148.15714	0.0004674	0.0006253	24138.80066	0.06%
MH	Gasoline	0.0763423	0.464744	2.5237649	0.0174337	0.0013763	0.012	0.042163	0.0555393	0.0012684	0.003	0.0147571	0.0190254	1761.7564	0.0160299	0.0273902	58232.95353	0.14%
MH	Diesel	0.0757378	4.5713455	0.3483257	0.0092725	0.1569535	0.016	0.0421001	0.2150535	0.1501637	0.004	0.014735	0.1688987	979.45388	0.0035179	0.1541746	19951.14185	0.05%
Motor Coach	Diesel	0.1680263	4.1589372	0.6255556	0.0162763	0.0992082	0.012	0.0819546	0.1931629	0.0949165	0.003	0.0286841	0.1266007	1720.3812	0.0078044	0.270803	5096.688488	0.01%
OBUS	Gasoline	0.0688353	0.611387	1.8656961	0.0170584	0.0005349	0.012	0.0420527	0.0545876	0.0004922	0.003	0.0147184	0.0182106	1723.8375	0.0141429	0.0288972	16427.86994	0.04%
PTO	Diesel	0.2858937	5.6607837	1.0041968	0.0205446	0.0940626	0	0	0.0940626	0.0899935	0	0	0.0899935	2171.5272	0.013279	0.3418173	46213.50061	0.11%
SBUS	Gasoline	0.1951546	0.6081323	4.1150936	0.0091426	0.0016581	0.008	0.046845	0.0565031	0.0015355	0.002	0.0163958	0.0199312	923.90344	0.0323531	0.030656	15859.26942	0.04%
SBUS	Diesel	0.1626694	9.0232875	0.3848993	0.0121809	0.0574397	0.012	0.046845	0.1162847	0.0549549	0.003	0.0163958	0.0743506	1287.4993	0.0075556	0.2026636	11562.50573	0.03%
SBUS	Natural Gas	0.0718892	1.012403	17.879881	0	0.0044829	0.012	0.046845	0.0633279	0.0041218	0.003	0.0163958	0.0235176	1776.1112	5.0314323	0.3620719	9575.528072	0.02%
T6 CAIRP Class 4	Diesel	0.084706	2.148884	0.3105751	0.0105804	0.0698287	0.012	0.0420462	0.1238749	0.0668079	0.003	0.0147162	0.0845241	1118.3269	0.0039344	0.1760344	268.1344205	0.00%
T6 CAIRP Class 5	Diesel	0.0582159	1.6088633	0.2260497	0.0105049	0.0508743	0.012	0.0420462	0.1049205	0.0486735	0.003	0.0147162	0.0663897	1110.3496	0.002704	0.1747787	367.8322079	0.00%
T6 CAIRP Class 6	Diesel	0.0828045	2.109848	0.3152393	0.0103991	0.0719166	0.012	0.0420462	0.1259628	0.0688055	0.003	0.0147162	0.0865217	1099.1675	0.0038461	0.1730186	961.1560831	0.00%
T6 CAIRP Class 7	Diesel	0.0824124	2.2378676	0.2906436	0.009805	0.0659171	0.012	0.0420462	0.1199634	0.0630656	0.003	0.0147162	0.0807818	1036.3733	0.0038278	0.1631342	6022.664692	0.01%
T6 CAIRP Class 7	Natural Gas	0.0050363	0.1470807	2.3505216	0	0.000335	0.012	0.0420462	0.0543812	0.000308	0.003	0.0147162	0.0180242	752.03568	0.3524813	0.1533074	6.192080887	0.00%
T6 Instate Delivery Class 4	Diesel	0.2807038	6.1610543	1.0032071	0.0101978	0.2168439	0.012	0.0422191	0.271063	0.2074633	0.003	0.0147767	0.22524	1077.8872	0.013038	0.1696689	13806.884	0.03%
T6 Instate Delivery Class 4	Natural Gas	0.005315	0.1548742	2.3991223	0	0.000347	0.012	0.0422191	0.0545661	0.000319	0.003	0.0147767	0.0180957	807.56557	0.3719875	0.1646275	25.32393971	0.00%
T6 Instate Delivery Class 5	Diesel	0.1409812	3.0860042	0.5246413	0.0104059	0.1162743	0.012	0.0422191	0.1704934	0.1112443	0.003	0.0147767	0.129021	1099.8909	0.0065482	0.1731324	13216.64923	0.03%
T6 Instate Delivery Class 5	Natural Gas	0.0053181	0.1546959	2.3976329	0	0.0003481	0.012	0.0422191	0.0545672	0.0003201	0.003	0.0147767	0.0180968	799.91479	0.3722074	0.1630679	23.63003813	0.00%
T6 Instate Delivery Class 6	Diesel	0.195892	4.492946	0.7085941	0.0100386	0.1572988	0.012	0.0422191	0.2115179	0.1504941	0.003	0.0147767	0.1682708	1061.0607	0.0090987	0.1670202	38132.71792	0.09%
T6 Instate Delivery Class 6	Natural Gas	0.0053229	0.1544262	2.39538	0	0.0003499	0.012	0.0422191	0.054569	0.0003217	0.003	0.0147767	0.0180984	808.96797	0.3725401	0.1649134	137.7665658	0.00%
T6 Instate Delivery Class 7	Diesel	0.1492419	4.8539378	0.4877259	0.0099838	0.1025081	0.012	0.0422191	0.1567272	0.0980736	0.003	0.0147767	0.1158503	1055.2682	0.0069319	0.1661084	8789.386077	0.02%
T6 Instate Delivery Class 7	Natural Gas	0.0057338	0.1330009	2.2150406	0	0.0005049	0.012	0.0422191	0.054724	0.0004643	0.003	0.0147767	0.0182409	801.46193	0.4013019	0.1633833	105.2830812	0.00%
T6 Instate Other Class 4	Diesel	0.2634272	5.7013968	0.9502463	0.0102737	0.2102665	0.012	0.0422045	0.264471	0.2011705	0.003	0.0147716	0.2189421	1085.9153	0.0122355	0.1709326	58358.31552	0.14%
T6 Instate Other Class 4	Natural Gas	0.0052767	0.1541495	2.3949723	0	0.0003446	0.012	0.0422045	0.0545491	0.0003168	0.003	0.0147716	0.0180884	803.9327	0.369311	0.1638869	77.94607934	0.00%
T6 Instate Other Class 5	Diesel	0.097913	2.1636474	0.3883133	0.0104475	0.0865921	0.012	0.0422045	0.1407967	0.0828462	0.003	0.0147716	0.1006178	1104.2863	0.0045478	0.1738243	147422.2866	0.36%
T6 Instate Other Class 5	Natural Gas	0.0052739	0.1543109	2.3963537	0	0.0003435	0.012	0.0422045	0.054548	0.0003158	0.003	0.0147716	0.0180874	796.66871	0.3691108	0.1624061	277.7584027	0.00%

T6 Instate Other Class 6	Diesel	0.1766948	3.798034	0.6500917	0.0102423	0.1447208	0.012	0.0422045	0.1989253	0.1384602	0.003	0.0147716	0.1562318	1082.5939	0.008207	0.1704097	103062.1657	0.25%
T6 Instate Other Class 6	Natural Gas	0.0052998	0.1528472	2.3838255	0	0.0003531	0.012	0.0422045	0.0545577	0.0003247	0.003	0.0147716	0.0180963	802.49738	0.3709264	0.1635943	240.771254	0.00%
T6 Instate Other Class 7	Diesel	0.1717755	4.1725806	0.5357361	0.0103124	0.1221191	0.012	0.0422045	0.1763236	0.1168363	0.003	0.0147716	0.1346078	1090.0026	0.0079785	0.1715759	54180.8439	0.13%
T6 Instate Other Class 7	Natural Gas	0.0061597	0.1073624	1.9917156	0	0.0006756	0.012	0.0422045	0.0548801	0.0006212	0.003	0.0147716	0.0183928	797.29193	0.4311123	0.1625332	1029.663009	0.00%
T6 Instate Tractor Class 6	Diesel	0.2541399	5.8599854	0.8577945	0.0102628	0.1854773	0.012	0.0422045	0.2396818	0.1774536	0.003	0.0147716	0.1952252	1084.7635	0.0118041	0.1707512	777.0150979	0.00%
T6 Instate Tractor Class 7	Diesel	0.1339244	4.1499375	0.4716545	0.0094832	0.1026995	0.012	0.0422045	0.156904	0.0982567	0.003	0.0147716	0.1160283	1002.3629	0.0062204	0.1577807	23738.53492	0.06%
T6 Instate Tractor Class 7	Natural Gas	0.0055272	0.1400176	2.2740106	0	0.0004376	0.012	0.0422045	0.0546421	0.0004023	0.003	0.0147716	0.0181739	802.22429	0.3868405	0.1635387	276.3663554	0.00%
T6 OOS Class 4	Diesel	0.084706	2.148884	0.3105751	0.0105804	0.0698287	0.012	0.0420462	0.1238749	0.0668079	0.003	0.0147162	0.0845241	1118.3269	0.0039344	0.1760344	154.6752499	0.00%
T6 OOS Class 5	Diesel	0.0582159	1.6088633	0.2260497	0.0105049	0.0508743	0.012	0.0420462	0.1049205	0.0486735	0.003	0.0147162	0.0663897	1110.3496	0.002704	0.1747787	212.1866286	0.00%
T6 OOS Class 6	Diesel	0.0828045	2.109848	0.3152393	0.0103991	0.0719166	0.012	0.0420462	0.1259628	0.0688055	0.003	0.0147162	0.0865217	1099.1675	0.0038461	0.1730186	554.4497312	0.00%
T6 OOS Class 7	Diesel	0.0910722	2.3517127	0.3205905	0.0098037	0.0726807	0.012	0.0420462	0.1267269	0.0695366	0.003	0.0147162	0.0872527	1036.2374	0.0042301	0.1631128	4031.538998	0.01%
T6 Public Class 4	Diesel	0.0524698	8.9477475	0.1550612	0.0103322	0.0393804	0.012	0.0421001	0.0934805	0.0376768	0.003	0.014735	0.0554118	1092.0917	0.0024371	0.1719048	2695.741347	0.01%
T6 Public Class 4	Natural Gas	0.005444	0.131785	2.2002787	0	0.0004553	0.012	0.0421001	0.0545554	0.0004186	0.003	0.014735	0.0181537	783.5711	0.3810182	0.1597361	46.78975832	0.00%
T6 Public Class 5	Diesel	0.0294375	4.1630579	0.1003341	0.0104997	0.0230488	0.012	0.0421001	0.0771489	0.0220518	0.003	0.014735	0.0397868	1109.8035	0.0013673	0.1746928	4269.234437	0.01%
T6 Public Class 5	Natural Gas	0.0058528	0.1186927	2.05888	0	0.0006136	0.012	0.0421001	0.0547136	0.0005642	0.003	0.014735	0.0182992	771.40671	0.4096281	0.1572563	753.466431	0.00%
T6 Public Class 6	Diesel	0.0722741	9.2693004	0.2020246	0.0104969	0.0565577	0.012	0.0421001	0.1106578	0.0541111	0.003	0.014735	0.0718461	1109.5029	0.0033569	0.1746455	6219.075832	0.02%
T6 Public Class 6	Natural Gas	0.0059755	0.1120063	1.9954415	0	0.0006583	0.012	0.0421001	0.0547584	0.0006053	0.003	0.014735	0.0183403	774.17915	0.4182173	0.1578215	269.4709229	0.00%
T6 Public Class 7	Diesel	0.0875194	10.103366	0.2354522	0.0106768	0.0679402	0.012	0.0421001	0.1220403	0.0650012	0.003	0.014735	0.0827362	1128.5207	0.004065	0.177639	13237.81049	0.03%
T6 Public Class 7	Natural Gas	0.00584	0.1180165	2.0550298	0	0.0006076	0.012	0.0421001	0.0547076	0.0005586	0.003	0.014735	0.0182936	776.80986	0.408736	0.1583578	515.7880387	0.00%
T6 Utility Class 5	Diesel	0.0135612	1.0870962	0.0485408	0.0099778	0.0083276	0.012	0.0421001	0.0624277	0.0079673	0.003	0.014735	0.0257024	1054.6356	0.0006299	0.1660089	7049.356756	0.02%
T6 Utility Class 5	Natural Gas	0.0051062	0.1502623	2.3754465	0	0.0003322	0.012	0.0421001	0.0544323	0.0003055	0.003	0.014735	0.0180405	784.0873	0.3573779	0.1598413	32.30309843	0.00%
T6 Utility Class 6	Diesel	0.0185745	1.7579501	0.0677989	0.010089	0.0128216	0.012	0.0421001	0.0669217	0.0122669	0.003	0.014735	0.030002	1066.3888	0.0008627	0.1678589	1323.095471	0.00%
T6 Utility Class 6	Natural Gas	0.0051062	0.1502623	2.3754465	0	0.0003322	0.012	0.0421001	0.0544323	0.0003055	0.003	0.014735	0.0180405	767.60172	0.3573779	0.1564806	15.19488969	0.00%
T6 Utility Class 7	Diesel	0.0144956	1.592186	0.0606942	0.0101792	0.0124679	0.012	0.0421001	0.0665679	0.0119285	0.003	0.014735	0.0296635	1075.9208	0.0006733	0.1693593	1834.455686	0.00%
T6 Utility Class 7	Natural Gas	0.0051062	0.1502623	2.3754465	0	0.0003322	0.012	0.0421001	0.0544323	0.0003055	0.003	0.014735	0.0180405	765.09829	0.3573779	0.1559703	27.55075522	0.00%
T6TS	Gasoline	0.1401441	0.915067	3.8062094	0.0169768	0.0011529	0.012	0.042163	0.0553159	0.0010638	0.003	0.0147571	0.0188208	1715.5935	0.0260669	0.0399627	51297.92755	0.13%
T7 CAIRP Class 8	Diesel	0.0806791	3.4660292	0.3051046	0.0149541	0.0647216	0.036	0.0768673	0.1775889	0.0619218	0.009	0.0269036	0.0978253	1580.6262	0.0037473	0.2488044	331977.1715	0.81%
T7 CAIRP Class 8	Natural Gas	0.0121793	0.3930035	7.4780621	0	0.0012695	0.036	0.0743697	0.1116392	0.0011673	0.009	0.0260294	0.0361967	1173.216	0.8524096	0.2391678	1296.59245	0.00%
T7 NNOOS Class 8	Diesel	0.1329418	3.7279949	0.5481883	0.0150594	0.1068135	0.036	0.0777319	0.2205454	0.1021928	0.009	0.0272062	0.138399	1591.7526	0.0061748	0.2505558	394661.0529	0.97%
T7 NOOS Class 8	Diesel	0.0942623	3.6320509	0.3545919	0.0149538	0.0720998	0.036	0.0770345	0.1851343	0.0689808	0.009	0.0269621	0.1049429	1580.5876	0.0043782	0.2487983	143301.8338	0.35%
T7 POLA Class 8	Diesel	0.0762032	4.5275586	0.2310805	0.0154131	0.0348924	0.036	0.0833796	0.154272	0.033383	0.009	0.0291828	0.0715658	1629.1341	0.0035394	0.2564399	227331.5951	0.56%
T7 POLA Class 8	Natural Gas	0.0120529	0.4969667	9.5680176	0	0.001027	0.036	0.0820592	0.1190862	0.0009443	0.009	0.0287207	0.038665	1299.4526	0.8435638	0.2649019	10624.17239	0.03%
T7 Public Class 8	Diesel	0.0883872	12.44381	0.3572244	0.0160473	0.079097	0.036	0.0948042	0.2099012	0.0756753	0.009	0.0331815	0.1178568	1696.1766	0.0041054	0.266993	28725.59238	0.07%
T7 Public Class 8	Natural Gas	0.0122748	0.4128345	7.7649706	0	0.0012488	0.036	0.0784018	0.1156506	0.0011482	0.009	0.0274406	0.0375888	1206.6001	0.8590952	0.2459733	5088.592007	0.01%
T7 Single Concrete/Transit Mix Class 8	Diesel	0.0688191	2.3550036	0.3292805	0.015642	0.0830899	0.036	0.0790648	0.1981547	0.0794955	0.009	0.0276727	0.1161682	1653.3289	0.0031965	0.2602484	87954.05123	0.22%
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.0126418	0.3170049	5.8447556	0	0.0015053	0.036	0.0745103	0.1120156	0.001384	0.009	0.0260786	0.0364626	1178.1784	0.8847808	0.2401794	5532.370773	0.01%
T7 Single Dump Class 8	Diesel	0.110213	4.3041853	0.4381499	0.0155301	0.0829558	0.036	0.0811709	0.2001267	0.0793671	0.009	0.0284098	0.1167769	1641.5047	0.0051191	0.2583872	68191.46853	0.17%
T7 Single Dump Class 8	Natural Gas	0.0126147	0.3302584	6.0594222	0	0.0014772	0.036	0.0758558	0.113333	0.0013582	0.009	0.0265495	0.0369077	1207.1815	0.882889	0.2460918	4670.844872	0.01%
T7 Single Other Class 8	Diesel	0.1625318	4.9697432	0.6535835	0.0155341	0.1249145	0.036	0.0826137	0.2435283	0.1195108	0.009	0.0289148	0.1574256	1641.9315	0.0075492	0.2584544	62512.90192	0.15%
T7 Single Other Class 8	Natural Gas	0.0125947	0.333158	6.2015542	0	0.0014611	0.036	0.0764024	0.1138635	0.0013434	0.009	0.0267408	0.0370843	1209.5216	0.8814885	0.2465689	3878.789038	0.01%
T7 SWCV Class 8	Diesel	0.0008598	15.684993	0.0117193	0.0354373	0.0163926	0.036	0.2100001	0.2623926	0.0156834	0.009	0.0735	0.0981835	3745.6621	3.994E-05	0.5895999	6518.798629	0.02%
T7 SWCV Class 8	Natural Gas	0.1428344	3.2381789	9.1657072	0	0.0110123	0.036	0.2100001	0.2570124	0.0101254	0.009	0.0735	0.0926254	1302.8616	2.374239	0.2655969	4457.859559	0.01%
T7 Tractor Class 8	Diesel	0.1149911	4.52954	0.4395036	0.0148195	0.0829822	0.036	0.0800766	0.1990588	0.0793924	0.009	0.0280268	0.1164192	1566.3976	0.005341	0.2465647	269022.8981	0.66%
T7 Tractor Class 8	Natural Gas	0.0123425	0.3638917	6.743942	0	0.001364	0.036	0.0742098	0.1115739	0.0012542	0.009	0.0259734	0.0362276	1205.4826	0.8638379	0.2457455	6237.000901	0.02%
T7 Utility Class 8	Diesel	0.019187	2.0304828	0.080714	0.0154961	0.0167564	0.036	0.0774687	0.1302251	0.0160316	0.009	0.027114	0.0521456	1637.9101	0.0008912	0.2578214	5591.766203	0.01%
T7IS	Gasoline	2.2364315	10.641701	94.502974	0.0239489	0.0039241	0.02	0.0971571	0.1210812	0.0036379	0.005	0.034005	0.0426429	2420.1511	0.3432879	0.2676895	688.4253412	0.00%
UBUS	Gasoline	0.0120793	0.1481943	0.4041301	0.015077	0.0013262	0.01037	0.1022557	0.1139516	0.0012194	0.00259	0.0357895	0.0396013	1523.6077	0.0039243	0.0151582	18275.95602	0.04%
UBUS	Diesel	0.0360937	0.1611899	0.0290465	0.0085478	0.0022309	0.012	0.11	0.1242309	0.0021344	0.003	0.0385	0.0436344	902.90407	0.0016765	0.142125	30.10971099	0.00%
UBUS	Electricity	0	0	0	0	0	0.012	0.055	0.067	0	0.003	0.01925	0.02225	0	0	0	2.969621933	0.00%
UBUS	Natural Gas	0.021142	0.6593586	26.068284	0	0.0001934	0.03132	0.11	0.1415161	0.000185	0.00783	0.0385	0.0465157	1994.1698	1.4797034	0.4065246	30685.35112	0.08%
																TOTAL VMT	40,749,848	100%

lbs/Mile															
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	
1.13E-03	1.72E-02	3.32E-03	2.22E-05	2.65E-05	9.27E-05	7.31E-04	8.50E-04	6.61E-06	3.24E-05	6.99E-04	7.38E-04	2.35E+00	5.27E-05	3.69E-04	
1.22E-05	2.93E-04	4.83E-03	0.00E+00	2.65E-05	9.27E-05	1.06E-06	1.20E-04	6.61E-06	3.24E-05	9.77E-07	4.00E-05	1.73E+00	8.54E-04	3.53E-04	
3.29E-05	1.41E-04	2.20E-03	6.62E-06	1.76E-05	1.53E-05	3.22E-06	3.61E-05	4.41E-06	5.35E-06	2.96E-06	1.27E-05	6.69E-01	8.15E-06	1.34E-05	
6.43E-05	5.70E-04	7.23E-04	5.07E-06	1.76E-05	1.53E-05	4.07E-05	7.36E-05	4.41E-06	5.36E-06	3.89E-05	4.87E-05	5.35E-01	2.98E-06	8.42E-05	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-05	9.61E-06	0.00E+00	2.72E-05	4.41E-06	3.36E-06	0.00E+00	7.77E-06	0.00E+00	0.00E+00	0.00E+00	
3.15E-06	7.16E-06	5.31E-04	3.23E-06	1.76E-05	8.22E-06	2.03E-06	2.79E-05	4.41E-06	2.88E-06	1.86E-06	9.15E-06	3.26E-01	1.03E-06	1.38E-06	
1.52E-04	6.56E-04	6.57E-03	7.93E-06	1.76E-05	1.87E-05	6.83E-06	4.31E-05	4.41E-06	6.53E-06	6.28E-06	1.72E-05	8.02E-01	3.29E-05	4.21E-05	
6.98E-04	3.47E-03	4.59E-03	8.66E-06	1.76E-05	2.12E-05	5.35E-04	5.74E-04	4.41E-06	7.42E-06	5.12E-04	5.24E-04	9.15E-01	3.24E-05	1.44E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-05	9.71E-06	0.00E+00	2.73E-05	4.41E-06	3.40E-06	0.00E+00	7.81E-06	0.00E+00	0.00E+00	0.00E+00	
3.17E-06	7.18E-06	5.34E-04	3.24E-06	1.76E-05	8.21E-06	2.35E-06	2.82E-05	4.41E-06	2.87E-06	2.16E-06	9.45E-06	3.28E-01	1.04E-06	1.39E-06	
4.61E-05	2.85E-04	2.85E-03	8.42E-06	1.76E-05	1.77E-05	3.45E-06	3.88E-05	4.41E-06	6.19E-06	3.17E-06	1.38E-05	8.51E-01	1.10E-05	2.06E-05	
4.89E-05	2.29E-04	3.50E-04	7.03E-06	1.76E-05	1.68E-05	2.64E-05	6.09E-05	4.41E-06	5.88E-06	2.53E-05	3.56E-05	7.43E-01	2.27E-06	1.17E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-05	9.59E-06	0.00E+00	2.72E-05	4.41E-06	3.35E-06	0.00E+00	7.76E-06	0.00E+00	0.00E+00	0.00E+00	
3.11E-06	7.05E-06	5.25E-04	3.18E-06	1.76E-05	8.22E-06	2.28E-06	2.81E-05	4.41E-06	2.88E-06	2.10E-06	9.39E-06	3.22E-01	1.02E-06	1.38E-06	
8.74E-05	6.03E-04	2.98E-03	1.54E-05	1.76E-05	1.72E-04	2.71E-06	1.92E-04	4.41E-06	6.02E-05	2.49E-06	6.71E-05	1.55E+00	1.73E-05	3.43E-05	
3.04E-04	6.00E-03	1.07E-03	1.04E-05	2.65E-05	1.72E-04	7.62E-05	2.75E-04	6.61E-06	6.02E-05	7.29E-05	1.40E-04	1.10E+00	1.41E-05	1.73E-04	
5.18E-05	4.69E-04	2.08E-03	1.66E-05	1.76E-05	2.01E-04	2.26E-06	2.21E-04	4.41E-06	7.02E-05	2.08E-06	7.67E-05	1.68E+00	1.11E-05	2.86E-05	
2.59E-04	4.39E-03	7.65E-04	1.26E-05	2.65E-05	2.01E-04	6.59E-05	2.93E-04	6.61E-06	7.02E-05	6.31E-05	1.40E-04	1.33E+00	1.20E-05	2.09E-04	
2.82E-03	1.41E-03	3.31E-02	4.17E-06	8.82E-06	2.65E-05	3.88E-06	3.92E-05	2.20E-06	9.26E-06	3.64E-06	1.51E-05	4.21E-01	4.15E-04	9.34E-05	
7.93E-05	4.49E-04	3.75E-03	1.02E-05	1.76E-05	1.83E-05	3.60E-06	3.95E-05	4.41E-06	6.39E-06	3.31E-06	1.41E-05	1.03E+00	1.71E-05	2.93E-05	
4.62E-05	5.26E-04	6.48E-04	9.40E-06	1.76E-05	1.75E-05	2.60E-05	6.11E-05	4.41E-06	6.12E-06	2.49E-05	3.54E-05	9.93E-01	2.15E-06	1.56E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-05	9.75E-06	0.00E+00	2.74E-05	4.41E-06	3.41E-06	0.00E+00	7.82E-06	0.00E+00	0.00E+00	0.00E+00	
3.16E-06	7.16E-06	5.33E-04	3.23E-06	1.76E-05	8.21E-06	2.36E-06	2.82E-05	4.41E-06	2.87E-06	2.17E-06	9.45E-06	3.27E-01	1.03E-06	1.38E-06	
1.68E-04	1.02E-03	5.56E-03	3.84E-05	2.65E-05	9.30E-05	3.03E-06	1.22E-04	6.61E-06	3.25E-05	2.80E-06	4.19E-05	3.88E+00	3.53E-05	6.04E-05	
1.67E-04	1.01E-02	7.68E-04	2.04E-05	3.53E-05	9.28E-05	3.46E-04	4.74E-04	8.82E-06	3.25E-05	3.31E-04	3.72E-04	2.16E+00	7.76E-06	3.40E-04	
3.70E-04	9.17E-03	1.38E-03	3.59E-05	2.65E-05	1.81E-04	2.19E-04	4.26E-04	6.61E-06	6.32E-05	2.09E-04	2.79E-04	3.79E+00	1.72E-05	5.97E-04	
1.52E-04	1.35E-03	4.11E-03	3.76E-05	2.65E-05	9.27E-05	1.18E-06	1.20E-04	6.61E-06	3.24E-05	1.09E-06	4.01E-05	3.80E+00	3.12E-05	6.37E-05	
6.30E-04	1.25E-02	2.21E-03	4.53E-05	0.00E+00	0.00E+00	2.07E-04	2.07E-04	0.00E+00	0.00E+00	1.98E-04	1.98E-04	4.79E+00	2.93E-05	7.54E-04	
4.30E-04	1.34E-03	9.07E-03	2.02E-05	1.76E-05	1.03E-04	3.66E-06	1.25E-04	4.41E-06	3.61E-05	3.39E-06	4.39E-05	2.04E+00	7.13E-05	6.76E-05	
3.59E-04	1.99E-02	8.49E-04	2.69E-05	2.65E-05	1.03E-04	1.27E-04	2.56E-04	6.61E-06	3.61E-05	1.21E-04	1.64E-04	2.84E+00	1.67E-05	4.47E-04	
1.58E-04	2.23E-03	3.94E-02	0.00E+00	2.65E-05	1.03E-04	9.88E-06	1.40E-04	6.61E-06	3.61E-05	9.09E-06	5.18E-05	3.92E+00	1.11E-02	7.98E-04	
1.87E-04	4.74E-03	6.85E-04	2.33E-05	2.65E-05	9.27E-05	1.54E-04	2.73E-04	6.61E-06	3.24E-05	1.47E-04	1.86E-04	2.47E+00	8.67E-06	3.88E-04	
1.28E-04	3.55E-03	4.98E-04	2.32E-05	2.65E-05	9.27E-05	1.12E-04	2.31E-04	6.61E-06	3.24E-05	1.07E-04	1.46E-04	2.45E+00	5.96E-06	3.85E-04	
1.83E-04	4.65E-03	6.95E-04	2.29E-05	2.65E-05	9.27E-05	1.59E-04	2.78E-04	6.61E-06	3.24E-05	1.52E-04	1.91E-04	2.42E+00	8.48E-06	3.81E-04	
1.82E-04	4.93E-03	6.41E-04	2.16E-05	2.65E-05	9.27E-05	1.45E-04	2.64E-04	6.61E-06	3.24E-05	1.39E-04	1.78E-04	2.28E+00	8.44E-06	3.60E-04	
1.11E-05	3.24E-04	5.18E-03	0.00E+00	2.65E-05	9.27E-05	7.39E-07	1.20E-04	6.61E-06	3.24E-05	6.79E-07	3.97E-05	1.66E+00	7.77E-04	3.38E-04	
6.19E-04	1.36E-02	2.21E-03	2.25E-05	2.65E-05	9.31E-05	4.78E-04	5.98E-04	6.61E-06	3.26E-05	4.57E-04	4.97E-04	2.38E+00	2.87E-05	3.74E-04	
1.17E-05	3.41E-04	5.29E-03	0.00E+00	2.65E-05	9.31E-05	7.65E-07	1.20E-04	6.61E-06	3.26E-05	7.03E-07	3.99E-05	1.78E+00	8.20E-04	3.63E-04	
3.11E-04	6.80E-03	1.16E-03	2.29E-05	2.65E-05	9.31E-05	2.56E-04	3.76E-04	6.61E-06	3.26E-05	2.45E-04	2.84E-04	2.42E+00	1.44E-05	3.82E-04	
1.17E-05	3.41E-04	5.29E-03	0.00E+00	2.65E-05	9.31E-05	7.67E-07	1.20E-04	6.61E-06	3.26E-05	7.06E-07	3.99E-05	1.76E+00	8.21E-04	3.59E-04	
4.32E-04	9.91E-03	1.56E-03	2.21E-05	2.65E-05	9.31E-05	3.47E-04	4.66E-04	6.61E-06	3.26E-05	3.32E-04	3.71E-04	2.34E+00	2.01E-05	3.68E-04	
1.17E-05	3.40E-04	5.28E-03	0.00E+00	2.65E-05	9.31E-05	7.71E-07	1.20E-04	6.61E-06	3.26E-05	7.09E-07	3.99E-05	1.78E+00	8.21E-04	3.64E-04	
3.29E-04	1.07E-02	1.08E-03	2.20E-05	2.65E-05	9.31E-05	2.26E-04	3.46E-04	6.61E-06	3.26E-05	2.16E-04	2.55E-04	2.33E+00	1.53E-05	3.66E-04	
1.26E-05	2.93E-04	4.88E-03	0.00E+00	2.65E-05	9.31E-05	1.11E-06	1.21E-04	6.61E-06	3.26E-05	1.02E-06	4.02E-05	1.77E+00	8.85E-04	3.60E-04	
5.81E-04	1.26E-02	2.09E-03	2.26E-05	2.65E-05	9.30E-05	4.64E-04	5.83E-04	6.61E-06	3.26E-05	4.44E-04	4.83E-04	2.39E+00	2.70E-05	3.77E-04	
1.16E-05	3.40E-04	5.28E-03	0.00E+00	2.65E-05	9.30E-05	7.60E-07	1.20E-04	6.61E-06	3.26E-05	6.98E-07	3.99E-05	1.77E+00	8.14E-04	3.61E-04	
2.16E-04	4.77E-03	8.56E-04	2.30E-05	2.65E-05	9.30E-05	1.91E-04	3.10E-04	6.61E-06	3.26E-05	1.83E-04	2.22E-04	2.43E+00	1.00E-05	3.83E-04	
1.16E-05	3.40E-04	5.28E-03	0.00E+00	2.65E-05	9.30E-05	7.57E-07	1.20E-04	6.61E-06	3.26E-05	6.96E-07	3.99E-05	1.76E+00	8.14E-04	3.58E-04	

1.00E-06

3.90E-04	8.37E-03	1.43E-03	2.26E-05	2.65E-05	9.30E-05	3.19E-04	4.39E-04	6.61E-06	3.26E-05	3.05E-04	3.44E-04	2.39E+00	1.81E-05	3.76E-04
1.17E-05	3.37E-04	5.26E-03	0.00E+00	2.65E-05	9.30E-05	7.79E-07	1.20E-04	6.61E-06	3.26E-05	7.16E-07	3.99E-05	1.77E+00	8.18E-04	3.61E-04
3.79E-04	9.20E-03	1.18E-03	2.27E-05	2.65E-05	9.30E-05	2.69E-04	3.89E-04	6.61E-06	3.26E-05	2.58E-04	2.97E-04	2.40E+00	1.76E-05	3.78E-04
1.36E-05	2.37E-04	4.39E-03	0.00E+00	2.65E-05	9.30E-05	1.49E-06	1.21E-04	6.61E-06	3.26E-05	1.37E-06	4.05E-05	1.76E+00	9.50E-04	3.58E-04
5.60E-04	1.29E-02	1.89E-03	2.26E-05	2.65E-05	9.30E-05	4.09E-04	5.28E-04	6.61E-06	3.26E-05	3.91E-04	4.30E-04	2.39E+00	2.60E-05	3.76E-04
2.95E-04	9.15E-03	1.04E-03	2.09E-05	2.65E-05	9.30E-05	2.26E-04	3.46E-04	6.61E-06	3.26E-05	2.17E-04	2.56E-04	2.21E+00	1.37E-05	3.48E-04
1.22E-05	3.09E-04	5.01E-03	0.00E+00	2.65E-05	9.30E-05	9.65E-07	1.20E-04	6.61E-06	3.26E-05	8.87E-07	4.01E-05	1.77E+00	8.53E-04	3.61E-04
1.87E-04	4.74E-03	6.85E-04	2.33E-05	2.65E-05	9.27E-05	1.54E-04	2.73E-04	6.61E-06	3.24E-05	1.47E-04	1.86E-04	2.47E+00	8.67E-06	3.88E-04
1.28E-04	3.55E-03	4.98E-04	2.32E-05	2.65E-05	9.27E-05	1.12E-04	2.31E-04	6.61E-06	3.24E-05	1.07E-04	1.46E-04	2.45E+00	5.96E-06	3.85E-04
1.83E-04	4.65E-03	6.95E-04	2.29E-05	2.65E-05	9.27E-05	1.59E-04	2.78E-04	6.61E-06	3.24E-05	1.52E-04	1.91E-04	2.42E+00	8.48E-06	3.81E-04
2.01E-04	5.18E-03	7.07E-04	2.16E-05	2.65E-05	9.27E-05	1.60E-04	2.79E-04	6.61E-06	3.24E-05	1.53E-04	1.92E-04	2.28E+00	9.33E-06	3.60E-04
1.16E-04	1.97E-02	3.42E-04	2.28E-05	2.65E-05	9.28E-05	8.68E-05	2.06E-04	6.61E-06	3.25E-05	8.31E-05	1.22E-04	2.41E+00	5.37E-06	3.79E-04
1.20E-05	2.91E-04	4.85E-03	0.00E+00	2.65E-05	9.28E-05	1.00E-06	1.20E-04	6.61E-06	3.25E-05	9.23E-07	4.00E-05	1.73E+00	8.40E-04	3.52E-04
6.49E-05	9.18E-03	2.21E-04	2.31E-05	2.65E-05	9.28E-05	5.08E-05	1.70E-04	6.61E-06	3.25E-05	4.86E-05	8.77E-05	2.45E+00	3.01E-06	3.85E-04
1.29E-05	2.62E-04	4.54E-03	0.00E+00	2.65E-05	9.28E-05	1.35E-06	1.21E-04	6.61E-06	3.25E-05	1.24E-06	4.03E-05	1.70E+00	9.03E-04	3.47E-04
1.59E-04	2.04E-02	4.45E-04	2.31E-05	2.65E-05	9.28E-05	1.25E-04	2.44E-04	6.61E-06	3.25E-05	1.19E-04	1.58E-04	2.45E+00	7.40E-06	3.85E-04
1.32E-05	2.47E-04	4.40E-03	0.00E+00	2.65E-05	9.28E-05	1.45E-06	1.21E-04	6.61E-06	3.25E-05	1.33E-06	4.04E-05	1.71E+00	9.22E-04	3.48E-04
1.93E-04	2.23E-02	5.19E-04	2.35E-05	2.65E-05	9.28E-05	1.50E-04	2.69E-04	6.61E-06	3.25E-05	1.43E-04	1.82E-04	2.49E+00	8.96E-06	3.92E-04
1.29E-05	2.60E-04	4.53E-03	0.00E+00	2.65E-05	9.28E-05	1.34E-06	1.21E-04	6.61E-06	3.25E-05	1.23E-06	4.03E-05	1.71E+00	9.01E-04	3.49E-04
2.99E-05	2.40E-03	1.07E-04	2.20E-05	2.65E-05	9.28E-05	1.84E-05	1.38E-04	6.61E-06	3.25E-05	1.76E-05	5.67E-05	2.33E+00	1.39E-06	3.66E-04
1.13E-05	3.31E-04	5.24E-03	0.00E+00	2.65E-05	9.28E-05	7.32E-07	1.20E-04	6.61E-06	3.25E-05	6.73E-07	3.98E-05	1.73E+00	7.88E-04	3.52E-04
4.09E-05	3.88E-03	1.49E-04	2.22E-05	2.65E-05	9.28E-05	2.83E-05	1.48E-04	6.61E-06	3.25E-05	2.70E-05	6.61E-05	2.35E+00	1.90E-06	3.70E-04
1.13E-05	3.31E-04	5.24E-03	0.00E+00	2.65E-05	9.28E-05	7.32E-07	1.20E-04	6.61E-06	3.25E-05	6.73E-07	3.98E-05	1.69E+00	7.88E-04	3.45E-04
3.20E-05	3.51E-03	1.34E-04	2.24E-05	2.65E-05	9.28E-05	2.75E-05	1.47E-04	6.61E-06	3.25E-05	2.63E-05	6.54E-05	2.37E+00	1.48E-06	3.73E-04
1.13E-05	3.31E-04	5.24E-03	0.00E+00	2.65E-05	9.28E-05	7.32E-07	1.20E-04	6.61E-06	3.25E-05	6.73E-07	3.98E-05	1.69E+00	7.88E-04	3.44E-04
3.09E-04	2.02E-03	8.39E-03	3.74E-05	2.65E-05	9.30E-05	2.54E-06	1.22E-04	6.61E-06	3.25E-05	2.35E-06	4.15E-05	3.78E+00	5.75E-05	8.81E-05
1.78E-04	7.64E-03	6.73E-04	3.30E-05	7.94E-05	1.69E-04	1.43E-04	3.92E-04	1.98E-05	5.93E-05	1.37E-04	2.16E-04	3.48E+00	8.26E-06	5.49E-04
2.69E-05	8.66E-04	1.65E-02	0.00E+00	7.94E-05	1.64E-04	2.80E-06	2.46E-04	1.98E-05	5.74E-05	2.57E-06	7.98E-05	2.59E+00	1.88E-03	5.27E-04
2.93E-04	8.22E-03	1.21E-03	3.32E-05	7.94E-05	1.71E-04	2.35E-04	4.86E-04	1.98E-05	6.00E-05	2.25E-04	3.05E-04	3.51E+00	1.36E-05	5.52E-04
2.08E-04	8.01E-03	7.82E-04	3.30E-05	7.94E-05	1.70E-04	1.59E-04	4.08E-04	1.98E-05	5.94E-05	1.52E-04	2.31E-04	3.48E+00	9.65E-06	5.49E-04
1.68E-04	9.98E-03	5.09E-04	3.40E-05	7.94E-05	1.84E-04	7.69E-05	3.40E-04	1.98E-05	6.43E-05	7.36E-05	1.58E-04	3.59E+00	7.80E-06	5.65E-04
2.66E-05	1.10E-03	2.11E-02	0.00E+00	7.94E-05	1.81E-04	2.26E-06	2.63E-04	1.98E-05	6.33E-05	2.08E-06	8.52E-05	2.86E+00	1.86E-03	5.84E-04
1.95E-04	2.74E-02	7.88E-04	3.54E-05	7.94E-05	2.09E-04	1.74E-04	4.63E-04	1.98E-05	7.32E-05	1.67E-04	2.60E-04	3.74E+00	9.05E-06	5.89E-04
2.71E-05	9.10E-04	1.71E-02	0.00E+00	7.94E-05	1.73E-04	2.75E-06	2.55E-04	1.98E-05	6.05E-05	2.53E-06	8.29E-05	2.66E+00	1.89E-03	5.42E-04
1.52E-04	5.19E-03	7.26E-04	3.45E-05	7.94E-05	1.74E-04	1.83E-04	4.37E-04	1.98E-05	6.10E-05	1.75E-04	2.56E-04	3.64E+00	7.05E-06	5.74E-04
2.79E-05	6.99E-04	1.29E-02	0.00E+00	7.94E-05	1.64E-04	3.32E-06	2.47E-04	1.98E-05	5.75E-05	3.05E-06	8.04E-05	2.60E+00	1.95E-03	5.29E-04
2.43E-04	9.49E-03	9.66E-04	3.42E-05	7.94E-05	1.79E-04	1.83E-04	4.41E-04	1.98E-05	6.26E-05	1.75E-04	2.57E-04	3.62E+00	1.13E-05	5.70E-04
2.78E-05	7.28E-04	1.34E-02	0.00E+00	7.94E-05	1.67E-04	3.26E-06	2.50E-04	1.98E-05	5.85E-05	2.99E-06	8.14E-05	2.66E+00	1.95E-03	5.43E-04
3.58E-04	1.10E-02	1.44E-03	3.42E-05	7.94E-05	1.82E-04	2.75E-04	5.37E-04	1.98E-05	6.37E-05	2.63E-04	3.47E-04	3.62E+00	1.66E-05	5.70E-04
2.78E-05	7.34E-04	1.37E-02	0.00E+00	7.94E-05	1.68E-04	3.22E-06	2.51E-04	1.98E-05	5.90E-05	2.96E-06	8.18E-05	2.67E+00	1.94E-03	5.44E-04
1.90E-06	3.46E-02	2.58E-05	7.81E-05	7.94E-05	4.63E-04	3.61E-05	5.78E-04	1.98E-05	1.62E-04	3.46E-05	2.16E-04	8.26E+00	8.80E-08	1.30E-03
3.15E-04	7.14E-03	2.02E-02	0.00E+00	7.94E-05	4.63E-04	2.43E-05	5.67E-04	1.98E-05	1.62E-04	2.23E-05	2.04E-04	2.87E+00	5.23E-03	5.86E-04
2.54E-04	9.99E-03	9.69E-04	3.27E-05	7.94E-05	1.77E-04	1.83E-04	4.39E-04	1.98E-05	6.18E-05	1.75E-04	2.57E-04	3.45E+00	1.18E-05	5.44E-04
2.72E-05	8.02E-04	1.49E-02	0.00E+00	7.94E-05	1.64E-04	3.01E-06	2.46E-04	1.98E-05	5.73E-05	2.76E-06	7.99E-05	2.66E+00	1.90E-03	5.42E-04
4.23E-05	4.48E-03	1.78E-04	3.42E-05	7.94E-05	1.71E-04	3.69E-05	2.87E-04	1.98E-05	5.98E-05	3.53E-05	1.15E-04	3.61E+00	1.96E-06	5.68E-04
4.93E-03	2.35E-02	2.08E-01	5.28E-05	4.41E-05	2.14E-04	8.65E-06	2.67E-04	1.10E-05	7.50E-05	8.02E-06	9.40E-05	5.34E+00	7.57E-04	5.90E-04
2.66E-05	3.27E-04	8.91E-04	3.32E-05	2.29E-05	2.25E-04	2.92E-06	2.51E-04	5.72E-06	7.89E-05	2.69E-06	8.73E-05	3.36E+00	8.65E-06	3.34E-05
7.96E-05	3.55E-04	6.40E-05	1.88E-05	2.65E-05	2.43E-04	4.92E-06	2.74E-04	6.61E-06	8.49E-05	4.71E-06	9.62E-05	1.99E+00	3.70E-06	3.13E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-05	1.21E-04	0.00E+00	1.48E-04	6.61E-06	4.24E-05	0.00E+00	4.91E-05	0.00E+00	0.00E+00	0.00E+00
4.66E-05	1.45E-03	5.75E-02	0.00E+00	6.91E-05	2.43E-04	4.26E-07	3.12E-04	1.73E-05	8.49E-05	4.08E-07	1.03E-04	4.40E+00	3.26E-03	8.96E-04

MTons/Mile															
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	
5.15E-07	7.79E-06	1.50E-06	1.01E-08	1.20E-08	4.21E-08	3.31E-07	3.85E-07	3.00E-09	1.47E-08	3.17E-07	3.35E-07	1.06E-03	2.39E-08	1.67E-07	
5.54E-09	1.33E-07	2.19E-06	0.00E+00	1.20E-08	4.21E-08	4.82E-10	5.45E-08	3.00E-09	1.47E-08	4.43E-10	1.82E-08	7.85E-04	3.88E-07	1.60E-07	
1.49E-08	6.40E-08	9.99E-07	3.00E-09	8.00E-09	6.93E-09	1.46E-09	1.64E-08	2.00E-09	2.43E-09	1.34E-09	5.77E-09	3.03E-04	3.69E-09	6.09E-09	
2.91E-08	2.59E-07	3.28E-07	2.30E-09	8.00E-09	6.94E-09	1.85E-08	3.34E-08	2.00E-09	2.43E-09	1.77E-08	2.21E-08	2.43E-04	1.35E-09	3.82E-08	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-09	4.36E-09	0.00E+00	1.24E-08	2.00E-09	1.53E-09	0.00E+00	3.53E-09	0.00E+00	0.00E+00	0.00E+00	
1.43E-09	3.25E-09	2.41E-07	1.46E-09	8.00E-09	3.73E-09	9.19E-10	1.26E-08	2.00E-09	1.31E-09	8.45E-10	4.15E-09	1.48E-04	4.67E-10	6.25E-10	
6.87E-08	2.97E-07	2.98E-06	3.60E-09	8.00E-09	8.46E-09	3.10E-09	1.96E-08	2.00E-09	2.96E-09	2.85E-09	7.81E-09	3.64E-04	1.49E-08	1.91E-08	
3.17E-07	1.57E-06	2.08E-06	3.93E-09	8.00E-09	9.61E-09	2.43E-07	2.60E-07	2.00E-09	3.36E-09	2.32E-07	2.37E-07	4.15E-04	1.47E-08	6.53E-08	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-09	4.41E-09	0.00E+00	1.24E-08	2.00E-09	1.54E-09	0.00E+00	3.54E-09	0.00E+00	0.00E+00	0.00E+00	
1.44E-09	3.26E-09	2.42E-07	1.47E-09	8.00E-09	3.73E-09	1.07E-09	1.28E-08	2.00E-09	1.30E-09	9.81E-10	4.29E-09	1.49E-04	4.70E-10	6.31E-10	
2.09E-08	1.29E-07	1.29E-06	3.82E-09	8.00E-09	8.02E-09	1.57E-09	1.76E-08	2.00E-09	2.81E-09	1.44E-09	6.25E-09	3.86E-04	4.97E-09	9.35E-09	
2.22E-08	1.04E-07	1.59E-07	3.19E-09	8.00E-09	7.62E-09	1.20E-08	2.76E-08	2.00E-09	2.67E-09	1.15E-08	1.61E-08	3.37E-04	1.03E-09	5.30E-08	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-09	4.35E-09	0.00E+00	1.23E-08	2.00E-09	1.52E-09	0.00E+00	3.52E-09	0.00E+00	0.00E+00	0.00E+00	
1.41E-09	3.20E-09	2.38E-07	1.44E-09	8.00E-09	3.73E-09	1.04E-09	1.28E-08	2.00E-09	1.31E-09	9.53E-10	4.26E-09	1.46E-04	4.63E-10	6.24E-10	
3.96E-08	2.74E-07	1.35E-06	6.98E-09	8.00E-09	7.80E-08	1.23E-09	8.72E-08	2.00E-09	2.73E-08	1.13E-09	3.04E-08	7.05E-04	7.87E-09	1.55E-08	
1.38E-07	2.72E-06	4.86E-07	4.71E-09	1.20E-08	7.80E-08	3.46E-08	1.25E-07	3.00E-09	2.73E-08	3.31E-08	6.34E-08	4.97E-04	6.40E-09	7.83E-08	
2.35E-08	2.13E-07	9.43E-07	7.54E-09	8.00E-09	9.10E-08	1.02E-09	1.00E-07	2.00E-09	3.19E-08	9.42E-10	3.48E-08	7.62E-04	5.02E-09	1.30E-08	
1.17E-07	1.99E-06	3.47E-07	5.70E-09	1.20E-08	9.10E-08	2.99E-08	1.33E-07	3.00E-09	3.19E-08	2.86E-08	6.35E-08	6.03E-04	5.45E-09	9.48E-08	
1.28E-06	6.39E-07	1.50E-05	1.89E-09	4.00E-09	1.20E-08	1.76E-09	1.78E-08	1.00E-09	4.20E-09	1.65E-09	6.85E-09	1.91E-04	1.88E-07	4.23E-08	
3.60E-08	2.04E-07	1.70E-06	4.63E-09	8.00E-09	8.28E-09	1.63E-09	1.79E-08	2.00E-09	2.90E-09	1.50E-09	6.40E-09	4.68E-04	7.76E-09	1.33E-08	
2.10E-08	2.39E-07	2.94E-07	4.26E-09	8.00E-09	7.93E-09	1.18E-08	2.77E-08	2.00E-09	2.78E-09	1.13E-08	1.61E-08	4.51E-04	9.74E-10	7.09E-08	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-09	4.42E-09	0.00E+00	1.24E-08	2.00E-09	1.55E-09	0.00E+00	3.55E-09	0.00E+00	0.00E+00	0.00E+00	
1.43E-09	3.25E-09	2.42E-07	1.47E-09	8.00E-09	3.72E-09	1.07E-09	1.28E-08	2.00E-09	1.30E-09	9.84E-10	4.29E-09	1.48E-04	4.67E-10	6.25E-10	
7.63E-08	4.65E-07	2.52E-06	1.74E-08	1.20E-08	4.22E-08	1.38E-09	5.55E-08	3.00E-09	1.48E-08	1.27E-09	1.90E-08	1.76E-03	1.60E-08	2.74E-08	
7.57E-08	4.57E-06	3.48E-07	9.27E-09	1.60E-08	4.21E-08	1.57E-07	2.15E-07	4.00E-09	1.47E-08	1.50E-07	1.69E-07	9.79E-04	3.52E-09	1.54E-07	
1.68E-07	4.16E-06	6.26E-07	1.63E-08	1.20E-08	8.20E-08	9.92E-08	1.93E-07	3.00E-09	2.87E-08	9.49E-08	1.27E-07	1.72E-03	7.80E-09	2.71E-07	
6.88E-08	6.11E-07	1.87E-06	1.71E-08	1.20E-08	4.21E-08	5.35E-10	5.46E-08	3.00E-09	1.47E-08	4.92E-10	1.82E-08	1.72E-03	1.41E-08	2.89E-08	
2.86E-07	5.66E-06	1.00E-06	2.05E-08	0.00E+00	0.00E+00	9.41E-08	9.41E-08	0.00E+00	0.00E+00	9.00E-08	9.00E-08	2.17E-03	1.33E-08	3.42E-07	
1.95E-07	6.08E-07	4.12E-06	9.14E-09	8.00E-09	4.68E-08	1.66E-09	5.65E-08	2.00E-09	1.64E-08	1.54E-09	1.99E-08	9.24E-04	3.24E-08	3.07E-08	
1.63E-07	9.02E-06	3.85E-07	1.22E-08	1.20E-08	4.68E-08	5.74E-08	1.16E-07	3.00E-09	1.64E-08	5.50E-08	7.44E-08	1.29E-03	7.56E-09	2.03E-07	
7.19E-08	1.01E-06	1.79E-05	0.00E+00	1.20E-08	4.68E-08	4.48E-09	6.33E-08	3.00E-09	1.64E-08	4.12E-09	2.35E-08	1.78E-03	5.03E-06	3.62E-07	
8.47E-08	2.15E-06	3.11E-07	1.06E-08	1.20E-08	4.20E-08	6.98E-08	1.24E-07	3.00E-09	1.47E-08	6.68E-08	8.45E-08	1.12E-03	3.93E-09	1.76E-07	
5.82E-08	1.61E-06	2.26E-07	1.05E-08	1.20E-08	4.20E-08	5.09E-08	1.05E-07	3.00E-09	1.47E-08	4.87E-08	6.64E-08	1.11E-03	2.70E-09	1.75E-07	
8.28E-08	2.11E-06	3.15E-07	1.04E-08	1.20E-08	4.20E-08	7.19E-08	1.26E-07	3.00E-09	1.47E-08	6.88E-08	8.65E-08	1.10E-03	3.85E-09	1.73E-07	
8.24E-08	2.24E-06	2.91E-07	9.81E-09	1.20E-08	4.20E-08	6.59E-08	1.20E-07	3.00E-09	1.47E-08	6.31E-08	8.08E-08	1.04E-03	3.83E-09	1.63E-07	
5.04E-09	1.47E-07	2.35E-06	0.00E+00	1.20E-08	4.20E-08	3.35E-10	5.44E-08	3.00E-09	1.47E-08	3.08E-10	1.80E-08	7.52E-04	3.52E-07	1.53E-07	
2.81E-07	6.16E-06	1.00E-06	1.02E-08	1.20E-08	4.22E-08	2.17E-07	2.71E-07	3.00E-09	1.48E-08	2.07E-07	2.25E-07	1.08E-03	1.30E-08	1.70E-07	
5.31E-09	1.55E-07	2.40E-06	0.00E+00	1.20E-08	4.22E-08	3.47E-10	5.46E-08	3.00E-09	1.48E-08	3.19E-10	1.81E-08	8.08E-04	3.72E-07	1.65E-07	
1.41E-07	3.09E-06	5.25E-07	1.04E-08	1.20E-08	4.22E-08	1.16E-07	1.70E-07	3.00E-09	1.48E-08	1.11E-07	1.29E-07	1.10E-03	6.55E-09	1.73E-07	
5.32E-09	1.55E-07	2.40E-06	0.00E+00	1.20E-08	4.22E-08	3.48E-10	5.46E-08	3.00E-09	1.48E-08	3.20E-10	1.81E-08	8.00E-04	3.72E-07	1.63E-07	
1.96E-07	4.49E-06	7.09E-07	1.00E-08	1.20E-08	4.22E-08	1.57E-07	2.12E-07	3.00E-09	1.48E-08	1.50E-07	1.68E-07	1.06E-03	9.10E-09	1.67E-07	
5.32E-09	1.54E-07	2.40E-06	0.00E+00	1.20E-08	4.22E-08	3.50E-10	5.46E-08	3.00E-09	1.48E-08	3.22E-10	1.81E-08	8.09E-04	3.73E-07	1.65E-07	
1.49E-07	4.85E-06	4.88E-07	9.98E-09	1.20E-08	4.22E-08	1.03E-07	1.57E-07	3.00E-09	1.48E-08	9.81E-08	1.16E-07	1.06E-03	6.93E-09	1.66E-07	
5.73E-09	1.33E-07	2.22E-06	0.00E+00	1.20E-08	4.22E-08	5.05E-10	5.47E-08	3.00E-09	1.48E-08	4.64E-10	1.82E-08	8.01E-04	4.01E-07	1.63E-07	
2.63E-07	5.70E-06	9.50E-07	1.03E-08	1.20E-08	4.22E-08	2.10E-07	2.64E-07	3.00E-09	1.48E-08	2.01E-07	2.19E-07	1.09E-03	1.22E-08	1.71E-07	
5.28E-09	1.54E-07	2.39E-06	0.00E+00	1.20E-08	4.22E-08	3.45E-10	5.45E-08	3.00E-09	1.48E-08	3.17E-10	1.81E-08	8.04E-04	3.69E-07	1.64E-07	
9.79E-08	2.16E-06	3.88E-07	1.04E-08	1.20E-08	4.22E-08	8.66E-08	1.41E-07	3.00E-09	1.48E-08	8.28E-08	1.01E-07	1.10E-03	4.55E-09	1.74E-07	
5.27E-09	1.54E-07	2.40E-06	0.00E+00	1.20E-08	4.22E-08	3.43E-10	5.45E-08	3.00E-09	1.48E-08	3.16E-10	1.81E-08	7.97E-04	3.69E-07	1.62E-07	

1.77E-07	3.80E-06	6.50E-07	1.02E-08	1.20E-08	4.22E-08	1.45E-07	1.99E-07	3.00E-09	1.48E-08	1.38E-07	1.56E-07	1.08E-03	8.21E-09	1.70E-07
5.30E-09	1.53E-07	2.38E-06	0.00E+00	1.20E-08	4.22E-08	3.53E-10	5.46E-08	3.00E-09	1.48E-08	3.25E-10	1.81E-08	8.02E-04	3.71E-07	1.64E-07
1.72E-07	4.17E-06	5.36E-07	1.03E-08	1.20E-08	4.22E-08	1.22E-07	1.76E-07	3.00E-09	1.48E-08	1.17E-07	1.35E-07	1.09E-03	7.98E-09	1.72E-07
6.16E-09	1.07E-07	1.99E-06	0.00E+00	1.20E-08	4.22E-08	6.76E-10	5.49E-08	3.00E-09	1.48E-08	6.21E-10	1.84E-08	7.97E-04	4.31E-07	1.63E-07
2.54E-07	5.86E-06	8.58E-07	1.03E-08	1.20E-08	4.22E-08	1.85E-07	2.40E-07	3.00E-09	1.48E-08	1.77E-07	1.95E-07	1.08E-03	1.18E-08	1.71E-07
1.34E-07	4.15E-06	4.72E-07	9.48E-09	1.20E-08	4.22E-08	1.03E-07	1.57E-07	3.00E-09	1.48E-08	9.83E-08	1.16E-07	1.00E-03	6.22E-09	1.58E-07
5.53E-09	1.40E-07	2.27E-06	0.00E+00	1.20E-08	4.22E-08	4.38E-10	5.46E-08	3.00E-09	1.48E-08	4.02E-10	1.82E-08	8.02E-04	3.87E-07	1.64E-07
8.47E-08	2.15E-06	3.11E-07	1.06E-08	1.20E-08	4.20E-08	6.98E-08	1.24E-07	3.00E-09	1.47E-08	6.68E-08	8.45E-08	1.12E-03	3.93E-09	1.76E-07
5.82E-08	1.61E-06	2.26E-07	1.05E-08	1.20E-08	4.20E-08	5.09E-08	1.05E-07	3.00E-09	1.47E-08	4.87E-08	6.64E-08	1.11E-03	2.70E-09	1.75E-07
8.28E-08	2.11E-06	3.15E-07	1.04E-08	1.20E-08	4.20E-08	7.19E-08	1.26E-07	3.00E-09	1.47E-08	6.88E-08	8.65E-08	1.10E-03	3.85E-09	1.73E-07
9.11E-08	2.35E-06	3.21E-07	9.80E-09	1.20E-08	4.20E-08	7.27E-08	1.27E-07	3.00E-09	1.47E-08	6.95E-08	8.73E-08	1.04E-03	4.23E-09	1.63E-07
5.25E-08	8.95E-06	1.55E-07	1.03E-08	1.20E-08	4.21E-08	3.94E-08	9.35E-08	3.00E-09	1.47E-08	3.77E-08	5.54E-08	1.09E-03	2.44E-09	1.72E-07
5.44E-09	1.32E-07	2.20E-06	0.00E+00	1.20E-08	4.21E-08	4.55E-10	5.46E-08	3.00E-09	1.47E-08	4.19E-10	1.82E-08	7.84E-04	3.81E-07	1.60E-07
2.94E-08	4.16E-06	1.00E-07	1.05E-08	1.20E-08	4.21E-08	2.30E-08	7.71E-08	3.00E-09	1.47E-08	2.21E-08	3.98E-08	1.11E-03	1.37E-09	1.75E-07
5.85E-09	1.19E-07	2.06E-06	0.00E+00	1.20E-08	4.21E-08	6.14E-10	5.47E-08	3.00E-09	1.47E-08	5.64E-10	1.83E-08	7.71E-04	4.10E-07	1.57E-07
7.23E-08	9.27E-06	2.02E-07	1.05E-08	1.20E-08	4.21E-08	5.66E-08	1.11E-07	3.00E-09	1.47E-08	5.41E-08	7.18E-08	1.11E-03	3.36E-09	1.75E-07
5.98E-09	1.12E-07	2.00E-06	0.00E+00	1.20E-08	4.21E-08	6.58E-10	5.48E-08	3.00E-09	1.47E-08	6.05E-10	1.83E-08	7.74E-04	4.18E-07	1.58E-07
8.75E-08	1.01E-05	2.35E-07	1.07E-08	1.20E-08	4.21E-08	6.79E-08	1.22E-07	3.00E-09	1.47E-08	6.50E-08	8.27E-08	1.13E-03	4.07E-09	1.78E-07
5.84E-09	1.18E-07	2.06E-06	0.00E+00	1.20E-08	4.21E-08	6.08E-10	5.47E-08	3.00E-09	1.47E-08	5.59E-10	1.83E-08	7.77E-04	4.09E-07	1.58E-07
1.36E-08	1.09E-06	4.85E-08	9.98E-09	1.20E-08	4.21E-08	8.33E-09	6.24E-08	3.00E-09	1.47E-08	7.97E-09	2.57E-08	1.05E-03	6.30E-10	1.66E-07
5.11E-09	1.50E-07	2.38E-06	0.00E+00	1.20E-08	4.21E-08	3.32E-10	5.44E-08	3.00E-09	1.47E-08	3.05E-10	1.80E-08	7.84E-04	3.57E-07	1.60E-07
1.86E-08	1.76E-06	6.78E-08	1.01E-08	1.20E-08	4.21E-08	1.28E-08	6.69E-08	3.00E-09	1.47E-08	1.23E-08	3.00E-08	1.07E-03	8.63E-10	1.68E-07
5.11E-09	1.50E-07	2.38E-06	0.00E+00	1.20E-08	4.21E-08	3.32E-10	5.44E-08	3.00E-09	1.47E-08	3.05E-10	1.80E-08	7.68E-04	3.57E-07	1.56E-07
1.45E-08	1.59E-06	6.07E-08	1.02E-08	1.20E-08	4.21E-08	1.25E-08	6.66E-08	3.00E-09	1.47E-08	1.19E-08	2.97E-08	1.08E-03	6.73E-10	1.69E-07
5.11E-09	1.50E-07	2.38E-06	0.00E+00	1.20E-08	4.21E-08	3.32E-10	5.44E-08	3.00E-09	1.47E-08	3.05E-10	1.80E-08	7.65E-04	3.57E-07	1.56E-07
1.40E-07	9.15E-07	3.81E-06	1.70E-08	1.20E-08	4.22E-08	1.15E-09	5.53E-08	3.00E-09	1.48E-08	1.06E-09	1.88E-08	1.72E-03	2.61E-08	4.00E-08
8.07E-08	3.47E-06	3.05E-07	1.50E-08	3.60E-08	7.69E-08	6.47E-08	1.78E-07	9.00E-09	2.69E-08	6.19E-08	9.78E-08	1.58E-03	3.75E-09	2.49E-07
1.22E-08	3.93E-07	7.48E-06	0.00E+00	3.60E-08	7.44E-08	1.27E-09	1.12E-07	9.00E-09	2.60E-08	1.17E-09	3.62E-08	1.17E-03	8.52E-07	2.39E-07
1.33E-07	3.73E-06	5.48E-07	1.51E-08	3.60E-08	7.77E-08	1.07E-07	2.21E-07	9.00E-09	2.72E-08	1.02E-07	1.38E-07	1.59E-03	6.17E-09	2.51E-07
9.43E-08	3.63E-06	3.55E-07	1.50E-08	3.60E-08	7.70E-08	7.21E-08	1.85E-07	9.00E-09	2.70E-08	6.90E-08	1.05E-07	1.58E-03	4.38E-09	2.49E-07
7.62E-08	4.53E-06	2.31E-07	1.54E-08	3.60E-08	8.34E-08	3.49E-08	1.54E-07	9.00E-09	2.92E-08	3.34E-08	7.16E-08	1.63E-03	3.54E-09	2.56E-07
1.21E-08	4.97E-07	9.57E-06	0.00E+00	3.60E-08	8.21E-08	1.03E-09	1.19E-07	9.00E-09	2.87E-08	9.44E-10	3.87E-08	1.30E-03	8.44E-07	2.65E-07
8.84E-08	1.24E-05	3.57E-07	1.60E-08	3.60E-08	9.48E-08	7.91E-08	2.10E-07	9.00E-09	3.32E-08	7.57E-08	1.18E-07	1.70E-03	4.11E-09	2.67E-07
1.23E-08	4.13E-07	7.76E-06	0.00E+00	3.60E-08	7.84E-08	1.25E-09	1.16E-07	9.00E-09	2.74E-08	1.15E-09	3.76E-08	1.21E-03	8.59E-07	2.46E-07
6.88E-08	2.36E-06	3.29E-07	1.56E-08	3.60E-08	7.91E-08	8.31E-08	1.98E-07	9.00E-09	2.77E-08	7.95E-08	1.16E-07	1.65E-03	3.20E-09	2.60E-07
1.26E-08	3.17E-07	5.84E-06	0.00E+00	3.60E-08	7.45E-08	1.51E-09	1.12E-07	9.00E-09	2.61E-08	1.38E-09	3.65E-08	1.18E-03	8.85E-07	2.40E-07
1.10E-07	4.30E-06	4.38E-07	1.55E-08	3.60E-08	8.12E-08	8.30E-08	2.00E-07	9.00E-09	2.84E-08	7.94E-08	1.17E-07	1.64E-03	5.12E-09	2.58E-07
1.26E-08	3.30E-07	6.06E-06	0.00E+00	3.60E-08	7.59E-08	1.48E-09	1.13E-07	9.00E-09	2.65E-08	1.36E-09	3.69E-08	1.21E-03	8.83E-07	2.46E-07
1.63E-07	4.97E-06	6.54E-07	1.55E-08	3.60E-08	8.26E-08	1.25E-07	2.44E-07	9.00E-09	2.89E-08	1.20E-07	1.57E-07	1.64E-03	7.55E-09	2.58E-07
1.26E-08	3.33E-07	6.20E-06	0.00E+00	3.60E-08	7.64E-08	1.46E-09	1.14E-07	9.00E-09	2.67E-08	1.34E-09	3.71E-08	1.21E-03	8.81E-07	2.47E-07
8.60E-10	1.57E-05	1.17E-08	3.54E-08	3.60E-08	2.10E-07	1.64E-08	2.62E-07	9.00E-09	7.35E-08	1.57E-08	9.82E-08	3.75E-03	3.99E-11	5.90E-07
1.43E-07	3.24E-06	9.17E-06	0.00E+00	3.60E-08	2.10E-07	1.10E-08	2.57E-07	9.00E-09	7.35E-08	1.01E-08	9.26E-08	1.30E-03	2.37E-06	2.66E-07
1.15E-07	4.53E-06	4.40E-07	1.48E-08	3.60E-08	8.01E-08	8.30E-08	1.99E-07	9.00E-09	2.80E-08	7.94E-08	1.16E-07	1.57E-03	5.34E-09	2.47E-07
1.23E-08	3.64E-07	6.74E-06	0.00E+00	3.60E-08	7.42E-08	1.36E-09	1.12E-07	9.00E-09	2.60E-08	1.25E-09	3.62E-08	1.21E-03	8.64E-07	2.46E-07
1.92E-08	2.03E-06	8.07E-08	1.55E-08	3.60E-08	7.75E-08	1.68E-08	1.30E-07	9.00E-09	2.71E-08	1.60E-08	5.21E-08	1.64E-03	8.91E-10	2.58E-07
2.24E-06	1.06E-05	9.45E-05	2.39E-08	2.00E-08	9.72E-08	3.92E-09	1.21E-07	5.00E-09	3.40E-08	3.64E-09	4.26E-08	2.42E-03	3.43E-07	2.68E-07
1.21E-08	1.48E-07	4.04E-07	1.51E-08	1.04E-08	1.02E-07	1.33E-09	1.14E-07	2.59E-09	3.58E-08	1.22E-09	3.96E-08	1.52E-03	3.92E-09	1.52E-08
3.61E-08	1.61E-07	2.90E-08	8.55E-09	1.20E-08	1.10E-07	2.23E-09	1.24E-07	3.00E-09	3.85E-08	2.13E-09	4.36E-08	9.03E-04	1.68E-09	1.42E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	5.50E-08	0.00E+00	6.70E-08	3.00E-09	1.93E-08	0.00E+00	2.23E-08	0.00E+00	0.00E+00	0.00E+00
2.11E-08	6.59E-07	2.61E-05	0.00E+00	3.13E-08	1.10E-07	1.93E-10	1.42E-07	7.83E-09	3.85E-08	1.85E-10	4.65E-08	1.99E-03	1.48E-06	4.07E-07

Year 2045 Current General Plan: Criteria Air Pollutants

Source: EMFAC2021 (v1.0.2) Emission Rates, Riverside (SC) Sub-Area, Average Speed, Average Fleet

Daily VMT	1,321,564			lbs/day					
Vehicle Type	**Fuel Type**	**Percent of VMT**	**Adjusted Percent of VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
All Other Buses	Diesel	0.02%	0.02%	0.01	0.39	0.05	0.01	0.04	0.02
All Other Buses	Natural Gas	0.01%	0.01%	0.00	0.01	0.28	0.00	0.01	0.00
LDA	Gasoline	41.11%	41.11%	3.44	22.87	588.22	2.70	18.54	5.87
LDA	Diesel	0.03%	0.03%	0.00	0.02	0.10	0.00	0.01	0.00
LDA	Electricity	5.15%	5.15%	0.00	0.00	0.00	0.00	1.86	0.53
LDA	Plug-in Hybrid	1.93%	1.93%	0.06	0.14	10.27	0.06	0.68	0.20
LDT1	Gasoline	2.63%	2.63%	0.25	1.66	40.74	0.20	1.29	0.41
LDT1	Diesel	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT1	Electricity	0.07%	0.07%	0.00	0.00	0.00	0.00	0.03	0.01
LDT1	Plug-in Hybrid	0.06%	0.06%	0.00	0.00	0.33	0.00	0.02	0.01
LDT2	Gasoline	22.14%	22.14%	2.58	14.37	370.96	1.74	10.76	3.44
LDT2	Diesel	0.08%	0.08%	0.03	0.07	0.30	0.01	0.05	0.02
LDT2	Electricity	0.57%	0.57%	0.00	0.00	0.00	0.00	0.20	0.06
LDT2	Plug-in Hybrid	0.60%	0.60%	0.02	0.04	3.20	0.02	0.21	0.06
LHD1	Gasoline	0.79%	0.79%	0.04	0.48	13.44	0.11	2.00	0.70
LHD1	Diesel	0.55%	0.55%	0.67	4.19	1.37	0.07	1.62	0.67
LHD1	Electricity	1.05%	1.05%	0.00	0.00	0.00	0.00	1.44	0.48
LHD2	Gasoline	0.09%	0.09%	0.00	0.07	1.62	0.01	0.27	0.10
LHD2	Diesel	0.26%	0.26%	0.44	3.40	0.96	0.04	0.92	0.39
LHD2	Electricity	0.25%	0.25%	0.00	0.00	0.00	0.00	0.40	0.13
MCY	Gasoline	0.25%	0.25%	5.66	3.34	69.90	0.01	0.13	0.05
MDV	Gasoline	12.89%	12.89%	1.75	9.99	230.73	1.23	6.34	2.03
MDV	Diesel	0.14%	0.14%	0.02	0.08	0.58	0.01	0.07	0.03
MDV	Electricity	0.53%	0.53%	0.00	0.00	0.00	0.00	0.19	0.05
MDV	Plug-in Hybrid	0.38%	0.38%	0.01	0.03	2.02	0.01	0.13	0.04
MH	Gasoline	0.03%	0.03%	0.01	0.17	0.14	0.02	0.05	0.02
MH	Diesel	0.02%	0.02%	0.02	1.14	0.07	0.01	0.06	0.03
Motor Coach	Diesel	0.01%	0.01%	0.00	0.26	0.01	0.00	0.04	0.02
OBUS	Gasoline	0.01%	0.01%	0.00	0.06	0.09	0.00	0.01	0.00
OBUS	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
PTO	Diesel	0.06%	0.06%	0.03	4.34	0.32	0.03	0.01	0.01
PTO	Electricity	0.06%	0.06%	0.00	0.00	0.00	0.00	0.00	0.00
SBUS	Gasoline	0.01%	0.01%	0.00	0.07	0.09	0.00	0.02	0.01
SBUS	Diesel	0.01%	0.01%	0.00	0.09	0.01	0.00	0.01	0.00
SBUS	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.02	0.01
SBUS	Natural Gas	0.02%	0.02%	0.02	0.16	4.75	0.00	0.03	0.01
T6 CAIRP Class 4	Diesel	0.00%	0.00%	0.00	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	0.00
T6 CAIRP Class 5	Diesel	0.00%	0.00%	0.00	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	0.00
T6 CAIRP Class 6	Diesel	0.00%	0.00%	0.00	0.01	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	0.02%	0.02%	0.00	0.08	0.01	0.00	0.03	0.01
T6 CAIRP Class 7	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Diesel	0.02%	0.02%	0.00	0.13	0.02	0.01	0.04	0.01
T6 Instate Delivery Class 4	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.02	0.01
T6 Instate Delivery Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	0.02%	0.02%	0.00	0.12	0.02	0.01	0.04	0.01
T6 Instate Delivery Class 5	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.02	0.01
T6 Instate Delivery Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	0.06%	0.06%	0.01	0.36	0.06	0.02	0.11	0.04
T6 Instate Delivery Class 6	Electricity	0.07%	0.07%	0.00	0.00	0.00	0.00	0.07	0.02
T6 Instate Delivery Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.02	0.00	0.00	0.00
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	0.00	0.21	0.02	0.01	0.03	0.01
T6 Instate Delivery Class 7	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.02	0.00	0.00	0.00
T6 Instate Other Class 4	Diesel	0.09%	0.09%	0.01	0.50	0.08	0.03	0.16	0.06
T6 Instate Other Class 4	Electricity	0.11%	0.11%	0.00	0.00	0.00	0.00	0.10	0.03

T6 Instate Other Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.03	0.00	0.00	0.00
T6 Instate Other Class 5	Diesel	0.24%	0.24%	0.03	1.26	0.21	0.06	0.40	0.15
T6 Instate Other Class 5	Electricity	0.27%	0.27%	0.00	0.00	0.00	0.00	0.26	0.08
T6 Instate Other Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.07	0.00	0.00	0.00
T6 Instate Other Class 6	Diesel	0.16%	0.16%	0.02	0.90	0.15	0.04	0.28	0.11
T6 Instate Other Class 6	Electricity	0.19%	0.19%	0.00	0.00	0.00	0.00	0.18	0.06
T6 Instate Other Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.05	0.00	0.00	0.00
T6 Instate Other Class 7	Diesel	0.11%	0.11%	0.02	1.00	0.11	0.03	0.19	0.07
T6 Instate Other Class 7	Electricity	0.08%	0.08%	0.00	0.00	0.00	0.00	0.08	0.02
T6 Instate Other Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.12	0.00	0.00	0.00
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	0.00	0.01	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	0.00
T6 Instate Tractor Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	0.07%	0.07%	0.01	0.60	0.07	0.02	0.11	0.04
T6 Instate Tractor Class 7	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.02	0.00
T6 Instate Tractor Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.07	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	0.00
T6 OOS Class 5	Diesel	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 6	Diesel	0.00%	0.00%	0.00	0.01	0.00	0.00	0.00	0.00
T6 OOS Class 7	Diesel	0.01%	0.01%	0.00	0.09	0.01	0.00	0.02	0.01
T6 Public Class 4	Diesel	0.00%	0.00%	0.00	0.03	0.00	0.00	0.01	0.00
T6 Public Class 4	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.02	0.00	0.00	0.00
T6 Public Class 5	Diesel	0.01%	0.01%	0.00	0.06	0.01	0.00	0.01	0.00
T6 Public Class 5	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Public Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.05	0.00	0.00	0.00
T6 Public Class 6	Diesel	0.01%	0.01%	0.00	0.06	0.01	0.00	0.01	0.00
T6 Public Class 6	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Public Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.05	0.00	0.00	0.00
T6 Public Class 7	Diesel	0.02%	0.02%	0.00	0.12	0.01	0.00	0.03	0.01
T6 Public Class 7	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Public Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.13	0.00	0.01	0.00
T6 Utility Class 5	Diesel	0.01%	0.01%	0.00	0.02	0.00	0.00	0.01	0.00
T6 Utility Class 5	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Utility Class 5	Natural Gas	0.00%	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	0.00
T6 Utility Class 6	Electricity	0.00%	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	0.00
T6 Utility Class 7	Diesel	0.00%	0.00%	0.00	0.01	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	0.00
T6 Utility Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.05%	0.05%	0.01	0.10	0.25	0.02	0.09	0.03
T6TS	Electricity	0.06%	0.06%	0.00	0.00	0.00	0.00	0.06	0.02
T7 CAIRP Class 8	Diesel	1.02%	1.02%	0.32	33.15	1.03	0.36	4.36	1.94
T7 CAIRP Class 8	Electricity	0.30%	0.30%	0.00	0.00	0.00	0.00	0.66	0.20
T7 CAIRP Class 8	Natural Gas	0.00%	0.00%	0.00	0.02	0.30	0.00	0.01	0.00
T7 NNOOS Class 8	Diesel	1.57%	1.57%	0.48	56.17	1.53	0.52	6.67	2.96
T7 NOOS Class 8	Diesel	0.57%	0.57%	0.18	20.98	0.57	0.19	2.45	1.10
T7 POLA Class 8	Diesel	0.71%	0.71%	0.21	22.91	0.73	0.27	2.94	1.27
T7 POLA Class 8	Electricity	0.13%	0.13%	0.00	0.00	0.00	0.00	0.29	0.09
T7 POLA Class 8	Natural Gas	0.03%	0.03%	0.01	0.12	2.27	0.00	0.10	0.03
T7 Public Class 8	Diesel	0.02%	0.02%	0.01	1.31	0.05	0.01	0.08	0.03
T7 Public Class 8	Electricity	0.03%	0.03%	0.00	0.00	0.00	0.00	0.07	0.02
T7 Public Class 8	Natural Gas	0.03%	0.03%	0.01	0.13	2.49	0.00	0.09	0.03
T7 Single Concrete/Transit Mix Class 8	Diesel	0.08%	0.08%	0.02	1.61	0.07	0.03	0.31	0.12
T7 Single Concrete/Transit Mix Class 8	Electricity	0.11%	0.11%	0.00	0.00	0.00	0.00	0.26	0.08
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.01%	0.01%	0.00	0.03	0.52	0.00	0.02	0.01
T7 Single Dump Class 8	Diesel	0.08%	0.08%	0.02	2.18	0.09	0.03	0.31	0.13
T7 Single Dump Class 8	Electricity	0.07%	0.07%	0.00	0.00	0.00	0.00	0.16	0.05
T7 Single Dump Class 8	Natural Gas	0.01%	0.01%	0.00	0.03	0.60	0.00	0.02	0.01
T7 Single Other Class 8	Diesel	0.13%	0.13%	0.03	3.22	0.13	0.05	0.50	0.20
T7 Single Other Class 8	Electricity	0.13%	0.13%	0.00	0.00	0.00	0.00	0.29	0.09
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	0.00	0.05	0.90	0.00	0.03	0.01
T7 SWCV Class 8	Diesel	0.00%	0.00%	0.00	0.12	0.00	0.00	0.00	0.00
T7 SWCV Class 8	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.04	0.01
T7 SWCV Class 8	Natural Gas	0.02%	0.02%	0.00	0.10	2.29	0.00	0.11	0.04

T7 Tractor Class 8	Diesel	0.89%	0.89%	0.26	27.97	0.85	0.31	3.67	1.59
T7 Tractor Class 8	Electricity	0.18%	0.18%	0.00	0.00	0.00	0.00	0.40	0.12
T7 Tractor Class 8	Natural Gas	0.02%	0.02%	0.01	0.11	2.03	0.00	0.09	0.03
T7 Utility Class 8	Diesel	0.01%	0.01%	0.00	0.16	0.01	0.00	0.03	0.01
T7 Utility Class 8	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T7IS	Gasoline	0.00%	0.00%	0.00	0.01	0.13	0.00	0.00	0.00
T7IS	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Gasoline	0.02%	0.02%	0.00	0.01	0.34	0.00	0.06	0.02
UBUS	Electricity	0.12%	0.12%	0.00	0.00	0.00	0.00	0.28	0.09
		100%	100%	17	244	1,359	8	74	27

Year 2045 General Plan Update: Criteria Air Pollutants

Source: EMFAC2021 (v1.0.2) Emission Rates, Riverside (SC) Sub-Area, Average Speed, Average Fleet

Daily VMT	**1,451,849**			**lbs/day**					
Vehicle Type	**Fuel Type**	**Percent of VMT**	**Adjusted Percent of VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
All Other Buses	Diesel	0.02%	0.02%	0.01	0.43	0.06	0.01	0.05	0.02
All Other Buses	Natural Gas	0.01%	0.01%	0.00	0.01	0.30	0.00	0.01	0.00
LDA	Gasoline	41.11%	41.11%	3.78	25.12	646.21	2.96	20.37	6.45
LDA	Diesel	0.03%	0.03%	0.00	0.02	0.11	0.00	0.01	0.00
LDA	Electricity	5.15%	5.15%	0.00	0.00	0.00	0.00	2.04	0.58
LDA	Plug-in Hybrid	1.93%	1.93%	0.07	0.15	11.28	0.07	0.75	0.22
LDT1	Gasoline	2.63%	2.63%	0.28	1.82	44.75	0.22	1.42	0.45
LDT1	Diesel	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT1	Electricity	0.07%	0.07%	0.00	0.00	0.00	0.00	0.03	0.01
LDT1	Plug-in Hybrid	0.06%	0.06%	0.00	0.00	0.36	0.00	0.02	0.01
LDT2	Gasoline	22.14%	22.14%	2.83	15.79	407.53	1.91	11.82	3.78
LDT2	Diesel	0.08%	0.08%	0.03	0.07	0.33	0.01	0.05	0.02
LDT2	Electricity	0.57%	0.57%	0.00	0.00	0.00	0.00	0.22	0.06
LDT2	Plug-in Hybrid	0.60%	0.60%	0.02	0.05	3.52	0.02	0.23	0.07
LHD1	Gasoline	0.79%	0.79%	0.04	0.53	14.77	0.12	2.20	0.77
LHD1	Diesel	0.55%	0.55%	0.73	4.60	1.51	0.08	1.78	0.73
LHD1	Electricity	1.05%	1.05%	0.00	0.00	0.00	0.00	1.58	0.53
LHD2	Gasoline	0.09%	0.09%	0.00	0.08	1.78	0.02	0.30	0.10
LHD2	Diesel	0.26%	0.26%	0.48	3.74	1.05	0.04	1.01	0.43
LHD2	Electricity	0.25%	0.25%	0.00	0.00	0.00	0.00	0.44	0.15
MCY	Gasoline	0.25%	0.25%	6.22	3.67	76.79	0.01	0.15	0.06
MDV	Gasoline	12.89%	12.89%	1.92	10.97	253.48	1.35	6.96	2.23
MDV	Diesel	0.14%	0.14%	0.02	0.09	0.64	0.01	0.08	0.03
MDV	Electricity	0.53%	0.53%	0.00	0.00	0.00	0.00	0.21	0.06
MDV	Plug-in Hybrid	0.38%	0.38%	0.01	0.03	2.22	0.01	0.15	0.04
MH	Gasoline	0.03%	0.03%	0.01	0.19	0.15	0.02	0.06	0.02
MH	Diesel	0.02%	0.02%	0.02	1.25	0.08	0.01	0.06	0.04
Motor Coach	Diesel	0.01%	0.01%	0.00	0.29	0.02	0.01	0.04	0.02
OBUS	Gasoline	0.01%	0.01%	0.00	0.07	0.10	0.00	0.02	0.01
OBUS	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
PTO	Diesel	0.06%	0.06%	0.03	4.77	0.35	0.03	0.01	0.01
PTO	Electricity	0.06%	0.06%	0.00	0.00	0.00	0.00	0.00	0.00
SBUS	Gasoline	0.01%	0.01%	0.01	0.08	0.10	0.00	0.03	0.01
SBUS	Diesel	0.01%	0.01%	0.00	0.10	0.01	0.00	0.01	0.00
SBUS	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.03	0.01
SBUS	Natural Gas	0.02%	0.02%	0.03	0.17	5.22	0.00	0.03	0.01
T6 CAIRP Class 4	Diesel	0.00%	0.00%	0.00	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	0.00
T6 CAIRP Class 5	Diesel	0.00%	0.00%	0.00	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	0.00
T6 CAIRP Class 6	Diesel	0.00%	0.00%	0.00	0.01	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	0.02%	0.02%	0.00	0.09	0.02	0.00	0.03	0.01
T6 CAIRP Class 7	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.01	0.00
T6 CAIRP Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Diesel	0.02%	0.02%	0.00	0.14	0.02	0.01	0.04	0.02
T6 Instate Delivery Class 4	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.03	0.01
T6 Instate Delivery Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	0.02%	0.02%	0.00	0.13	0.02	0.01	0.04	0.02
T6 Instate Delivery Class 5	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.03	0.01
T6 Instate Delivery Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	0.06%	0.06%	0.01	0.39	0.06	0.02	0.12	0.04
T6 Instate Delivery Class 6	Electricity	0.07%	0.07%	0.00	0.00	0.00	0.00	0.07	0.02
T6 Instate Delivery Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.02	0.00	0.00	0.00
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	0.00	0.24	0.02	0.01	0.04	0.01
T6 Instate Delivery Class 7	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.03	0.00	0.00	0.00
T6 Instate Other Class 4	Diesel	0.09%	0.09%	0.01	0.55	0.09	0.03	0.18	0.07
T6 Instate Other Class 4	Electricity	0.11%	0.11%	0.00	0.00	0.00	0.00	0.11	0.04

T6 Instate Other Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.03	0.00	0.00	0.00
T6 Instate Other Class 5	Diesel	0.24%	0.24%	0.04	1.38	0.23	0.07	0.44	0.17
T6 Instate Other Class 5	Electricity	0.27%	0.27%	0.00	0.00	0.00	0.00	0.29	0.09
T6 Instate Other Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.08	0.00	0.00	0.00
T6 Instate Other Class 6	Diesel	0.16%	0.16%	0.03	0.99	0.16	0.05	0.31	0.12
T6 Instate Other Class 6	Electricity	0.19%	0.19%	0.00	0.00	0.00	0.00	0.20	0.06
T6 Instate Other Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.06	0.00	0.00	0.00
T6 Instate Other Class 7	Diesel	0.11%	0.11%	0.02	1.10	0.13	0.03	0.21	0.08
T6 Instate Other Class 7	Electricity	0.08%	0.08%	0.00	0.00	0.00	0.00	0.09	0.03
T6 Instate Other Class 7	Natural Gas	0.00%	0.00%	0.00	0.01	0.13	0.00	0.00	0.00
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	0.00	0.01	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	0.00
T6 Instate Tractor Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	0.07%	0.07%	0.01	0.66	0.08	0.02	0.13	0.05
T6 Instate Tractor Class 7	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.02	0.01
T6 Instate Tractor Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.08	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	0.00
T6 OOS Class 5	Diesel	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 6	Diesel	0.00%	0.00%	0.00	0.01	0.00	0.00	0.00	0.00
T6 OOS Class 7	Diesel	0.01%	0.01%	0.00	0.10	0.01	0.00	0.03	0.01
T6 Public Class 4	Diesel	0.00%	0.00%	0.00	0.03	0.00	0.00	0.01	0.00
T6 Public Class 4	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.02	0.00	0.00	0.00
T6 Public Class 5	Diesel	0.01%	0.01%	0.00	0.06	0.01	0.00	0.01	0.00
T6 Public Class 5	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Public Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.05	0.00	0.00	0.00
T6 Public Class 6	Diesel	0.01%	0.01%	0.00	0.06	0.01	0.00	0.01	0.01
T6 Public Class 6	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Public Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.06	0.00	0.00	0.00
T6 Public Class 7	Diesel	0.02%	0.02%	0.00	0.13	0.01	0.00	0.03	0.01
T6 Public Class 7	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Public Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.14	0.00	0.01	0.00
T6 Utility Class 5	Diesel	0.01%	0.01%	0.00	0.03	0.01	0.00	0.01	0.00
T6 Utility Class 5	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Utility Class 5	Natural Gas	0.00%	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	0.00
T6 Utility Class 6	Electricity	0.00%	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	0.00
T6 Utility Class 7	Diesel	0.00%	0.00%	0.00	0.01	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	0.00
T6 Utility Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.05%	0.05%	0.01	0.11	0.27	0.02	0.09	0.03
T6TS	Electricity	0.06%	0.06%	0.00	0.00	0.00	0.00	0.06	0.02
T7 CAIRP Class 8	Diesel	1.02%	1.02%	0.35	36.42	1.13	0.39	4.79	2.13
T7 CAIRP Class 8	Electricity	0.30%	0.30%	0.00	0.00	0.00	0.00	0.73	0.22
T7 CAIRP Class 8	Natural Gas	0.00%	0.00%	0.00	0.02	0.32	0.00	0.01	0.00
T7 NNOOS Class 8	Diesel	1.57%	1.57%	0.53	61.70	1.68	0.58	7.32	3.25
T7 NOOS Class 8	Diesel	0.57%	0.57%	0.20	23.04	0.63	0.21	2.69	1.21
T7 POLA Class 8	Diesel	0.71%	0.71%	0.23	25.17	0.80	0.29	3.23	1.40
T7 POLA Class 8	Electricity	0.13%	0.13%	0.00	0.00	0.00	0.00	0.31	0.10
T7 POLA Class 8	Natural Gas	0.03%	0.03%	0.01	0.13	2.49	0.00	0.11	0.03
T7 Public Class 8	Diesel	0.02%	0.02%	0.01	1.44	0.05	0.01	0.09	0.04
T7 Public Class 8	Electricity	0.03%	0.03%	0.00	0.00	0.00	0.00	0.08	0.02
T7 Public Class 8	Natural Gas	0.03%	0.03%	0.01	0.15	2.74	0.00	0.10	0.03
T7 Single Concrete/Transit Mix Class 8	Diesel	0.08%	0.08%	0.02	1.76	0.07	0.03	0.35	0.14
T7 Single Concrete/Transit Mix Class 8	Electricity	0.11%	0.11%	0.00	0.00	0.00	0.00	0.28	0.09
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.01%	0.01%	0.00	0.03	0.58	0.00	0.02	0.01
T7 Single Dump Class 8	Diesel	0.08%	0.08%	0.02	2.39	0.09	0.03	0.34	0.14
T7 Single Dump Class 8	Electricity	0.07%	0.07%	0.00	0.00	0.00	0.00	0.18	0.05
T7 Single Dump Class 8	Natural Gas	0.01%	0.01%	0.00	0.04	0.66	0.00	0.02	0.01
T7 Single Other Class 8	Diesel	0.13%	0.13%	0.04	3.53	0.14	0.06	0.55	0.22
T7 Single Other Class 8	Electricity	0.13%	0.13%	0.00	0.00	0.00	0.00	0.32	0.10
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	0.00	0.05	0.98	0.00	0.04	0.01
T7 SWCV Class 8	Diesel	0.00%	0.00%	0.00	0.13	0.00	0.00	0.00	0.00
T7 SWCV Class 8	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.05	0.02
T7 SWCV Class 8	Natural Gas	0.02%	0.02%	0.00	0.11	2.51	0.00	0.12	0.04

T7 Tractor Class 8	Diesel	0.89%	0.89%	0.29	30.73	0.93	0.34	4.04	1.74
T7 Tractor Class 8	Electricity	0.18%	0.18%	0.00	0.00	0.00	0.00	0.44	0.13
T7 Tractor Class 8	Natural Gas	0.02%	0.02%	0.01	0.12	2.23	0.00	0.09	0.03
T7 Utility Class 8	Diesel	0.01%	0.01%	0.00	0.17	0.01	0.00	0.03	0.01
T7 Utility Class 8	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T7IS	Gasoline	0.00%	0.00%	0.00	0.01	0.15	0.00	0.00	0.00
T7IS	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Gasoline	0.02%	0.02%	0.00	0.01	0.37	0.00	0.07	0.02
UBUS	Electricity	0.12%	0.12%	0.00	0.00	0.00	0.00	0.30	0.10
		100%	100%	18	268	1,493	9	82	29

Year 2045 Existing: Criteria Air Pollutants

Source: EMFAC2021 (v1.0.2) Emission Rates, Riverside (SC) Sub-Area, Average Speed, Average Fleet

Daily VMT	904,100			lbs/day					
Vehicle Type	**Fuel Type**	**Percent of VMT**	**Adjusted Percent of VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
All Other Buses	Diesel	0.02%	0.02%	0.01	0.27	0.04	0.00	0.03	0.01
All Other Buses	Natural Gas	0.01%	0.01%	0.00	0.01	0.19	0.00	0.01	0.00
LDA	Gasoline	41.11%	41.11%	2.35	15.64	402.41	1.84	12.69	4.02
LDA	Diesel	0.03%	0.03%	0.00	0.01	0.07	0.00	0.01	0.00
LDA	Electricity	5.15%	5.15%	0.00	0.00	0.00	0.00	1.27	0.36
LDA	Plug-in Hybrid	1.93%	1.93%	0.04	0.10	7.03	0.04	0.47	0.14
LDT1	Gasoline	2.63%	2.63%	0.17	1.14	27.87	0.14	0.88	0.28
LDT1	Diesel	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
LDT1	Electricity	0.07%	0.07%	0.00	0.00	0.00	0.00	0.02	0.01
LDT1	Plug-in Hybrid	0.06%	0.06%	0.00	0.00	0.22	0.00	0.01	0.00
LDT2	Gasoline	22.14%	22.14%	1.76	9.83	253.78	1.19	7.36	2.35
LDT2	Diesel	0.08%	0.08%	0.02	0.04	0.20	0.00	0.03	0.01
LDT2	Electricity	0.57%	0.57%	0.00	0.00	0.00	0.00	0.14	0.04
LDT2	Plug-in Hybrid	0.60%	0.60%	0.01	0.03	2.19	0.01	0.15	0.04
LHD1	Gasoline	0.79%	0.79%	0.03	0.33	9.20	0.08	1.37	0.48
LHD1	Diesel	0.55%	0.55%	0.46	2.87	0.94	0.05	1.11	0.46
LHD1	Electricity	1.05%	1.05%	0.00	0.00	0.00	0.00	0.98	0.33
LHD2	Gasoline	0.09%	0.09%	0.00	0.05	1.11	0.01	0.19	0.07
LHD2	Diesel	0.26%	0.26%	0.30	2.33	0.66	0.03	0.63	0.27
LHD2	Electricity	0.25%	0.25%	0.00	0.00	0.00	0.00	0.27	0.09
MCY	Gasoline	0.25%	0.25%	3.87	2.28	47.82	0.01	0.09	0.04
MDV	Gasoline	12.89%	12.89%	1.20	6.83	157.85	0.84	4.33	1.39
MDV	Diesel	0.14%	0.14%	0.01	0.05	0.40	0.01	0.05	0.02
MDV	Electricity	0.53%	0.53%	0.00	0.00	0.00	0.00	0.13	0.04
MDV	Plug-in Hybrid	0.38%	0.38%	0.01	0.02	1.38	0.01	0.09	0.03
MH	Gasoline	0.03%	0.03%	0.01	0.12	0.09	0.01	0.04	0.01
MH	Diesel	0.02%	0.02%	0.01	0.78	0.05	0.00	0.04	0.02
Motor Coach	Diesel	0.01%	0.01%	0.00	0.18	0.01	0.00	0.03	0.01
OBUS	Gasoline	0.01%	0.01%	0.00	0.04	0.06	0.00	0.01	0.00
OBUS	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
PTO	Diesel	0.06%	0.06%	0.02	2.97	0.22	0.02	0.00	0.00
PTO	Electricity	0.06%	0.06%	0.00	0.00	0.00	0.00	0.00	0.00
SBUS	Gasoline	0.01%	0.01%	0.00	0.05	0.06	0.00	0.02	0.01
SBUS	Diesel	0.01%	0.01%	0.00	0.06	0.01	0.00	0.01	0.00
SBUS	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.02	0.01
SBUS	Natural Gas	0.02%	0.02%	0.02	0.11	3.25	0.00	0.02	0.01
T6 CAIRP Class 4	Diesel	0.00%	0.00%	0.00	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	0.00
T6 CAIRP Class 5	Diesel	0.00%	0.00%	0.00	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	0.00
T6 CAIRP Class 6	Diesel	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 6	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Diesel	0.02%	0.02%	0.00	0.06	0.01	0.00	0.02	0.01
T6 CAIRP Class 7	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 CAIRP Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 4	Diesel	0.02%	0.02%	0.00	0.09	0.01	0.00	0.03	0.01
T6 Instate Delivery Class 4	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.02	0.01
T6 Instate Delivery Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Instate Delivery Class 5	Diesel	0.02%	0.02%	0.00	0.08	0.01	0.00	0.03	0.01
T6 Instate Delivery Class 5	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.02	0.00
T6 Instate Delivery Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Delivery Class 6	Diesel	0.06%	0.06%	0.01	0.24	0.04	0.01	0.07	0.03
T6 Instate Delivery Class 6	Electricity	0.07%	0.07%	0.00	0.00	0.00	0.00	0.05	0.01
T6 Instate Delivery Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	0.00	0.15	0.01	0.00	0.02	0.01
T6 Instate Delivery Class 7	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.02	0.00	0.00	0.00
T6 Instate Other Class 4	Diesel	0.09%	0.09%	0.01	0.34	0.06	0.02	0.11	0.04
T6 Instate Other Class 4	Electricity	0.11%	0.11%	0.00	0.00	0.00	0.00	0.07	0.02

T6 Instate Other Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.02	0.00	0.00	0.00
T6 Instate Other Class 5	Diesel	0.24%	0.24%	0.02	0.86	0.15	0.04	0.28	0.10
T6 Instate Other Class 5	Electricity	0.27%	0.27%	0.00	0.00	0.00	0.00	0.18	0.06
T6 Instate Other Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.05	0.00	0.00	0.00
T6 Instate Other Class 6	Diesel	0.16%	0.16%	0.02	0.62	0.10	0.03	0.19	0.07
T6 Instate Other Class 6	Electricity	0.19%	0.19%	0.00	0.00	0.00	0.00	0.12	0.04
T6 Instate Other Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.04	0.00	0.00	0.00
T6 Instate Other Class 7	Diesel	0.11%	0.11%	0.01	0.68	0.08	0.02	0.13	0.05
T6 Instate Other Class 7	Electricity	0.08%	0.08%	0.00	0.00	0.00	0.00	0.05	0.02
T6 Instate Other Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.08	0.00	0.00	0.00
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	0.00	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	0.00
T6 Instate Tractor Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Instate Tractor Class 7	Diesel	0.07%	0.07%	0.01	0.41	0.05	0.01	0.08	0.03
T6 Instate Tractor Class 7	Electricity	0.02%	0.02%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Instate Tractor Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.05	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	0.00
T6 OOS Class 5	Diesel	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6 OOS Class 6	Diesel	0.00%	0.00%	0.00	0.01	0.00	0.00	0.00	0.00
T6 OOS Class 7	Diesel	0.01%	0.01%	0.00	0.06	0.01	0.00	0.02	0.01
T6 Public Class 4	Diesel	0.00%	0.00%	0.00	0.02	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	0.00
T6 Public Class 4	Natural Gas	0.00%	0.00%	0.00	0.00	0.01	0.00	0.00	0.00
T6 Public Class 5	Diesel	0.01%	0.01%	0.00	0.04	0.00	0.00	0.01	0.00
T6 Public Class 5	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 5	Natural Gas	0.00%	0.00%	0.00	0.00	0.03	0.00	0.00	0.00
T6 Public Class 6	Diesel	0.01%	0.01%	0.00	0.04	0.00	0.00	0.01	0.00
T6 Public Class 6	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.00	0.00
T6 Public Class 6	Natural Gas	0.00%	0.00%	0.00	0.00	0.04	0.00	0.00	0.00
T6 Public Class 7	Diesel	0.02%	0.02%	0.00	0.08	0.01	0.00	0.02	0.01
T6 Public Class 7	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Public Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.09	0.00	0.00	0.00
T6 Utility Class 5	Diesel	0.01%	0.01%	0.00	0.02	0.00	0.00	0.01	0.00
T6 Utility Class 5	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T6 Utility Class 5	Natural Gas	0.00%	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	0.00
T6 Utility Class 6	Electricity	0.00%	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	0.00
T6 Utility Class 7	Diesel	0.00%	0.00%	0.00	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	0.00
T6 Utility Class 7	Natural Gas	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T6TS	Gasoline	0.05%	0.05%	0.01	0.07	0.17	0.01	0.06	0.02
T6TS	Electricity	0.06%	0.06%	0.00	0.00	0.00	0.00	0.04	0.01
T7 CAIRP Class 8	Diesel	1.02%	1.02%	0.22	22.68	0.70	0.24	2.98	1.33
T7 CAIRP Class 8	Electricity	0.30%	0.30%	0.00	0.00	0.00	0.00	0.45	0.14
T7 CAIRP Class 8	Natural Gas	0.00%	0.00%	0.00	0.01	0.20	0.00	0.01	0.00
T7 NNOOS Class 8	Diesel	1.57%	1.57%	0.33	38.42	1.05	0.36	4.56	2.02
T7 NOOS Class 8	Diesel	0.57%	0.57%	0.12	14.35	0.39	0.13	1.68	0.75
T7 POLA Class 8	Diesel	0.71%	0.71%	0.14	15.67	0.50	0.18	2.01	0.87
T7 POLA Class 8	Electricity	0.13%	0.13%	0.00	0.00	0.00	0.00	0.20	0.06
T7 POLA Class 8	Natural Gas	0.03%	0.03%	0.01	0.08	1.55	0.00	0.07	0.02
T7 Public Class 8	Diesel	0.02%	0.02%	0.01	0.89	0.03	0.01	0.06	0.02
T7 Public Class 8	Electricity	0.03%	0.03%	0.00	0.00	0.00	0.00	0.05	0.01
T7 Public Class 8	Natural Gas	0.03%	0.03%	0.01	0.09	1.71	0.00	0.06	0.02
T7 Single Concrete/Transit Mix Class 8	Diesel	0.08%	0.08%	0.01	1.10	0.05	0.02	0.22	0.08
T7 Single Concrete/Transit Mix Class 8	Electricity	0.11%	0.11%	0.00	0.00	0.00	0.00	0.17	0.05
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.01%	0.01%	0.00	0.02	0.36	0.00	0.02	0.00
T7 Single Dump Class 8	Diesel	0.08%	0.08%	0.02	1.49	0.06	0.02	0.21	0.09
T7 Single Dump Class 8	Electricity	0.07%	0.07%	0.00	0.00	0.00	0.00	0.11	0.03
T7 Single Dump Class 8	Natural Gas	0.01%	0.01%	0.00	0.02	0.41	0.00	0.01	0.00
T7 Single Other Class 8	Diesel	0.13%	0.13%	0.02	2.20	0.09	0.03	0.34	0.14
T7 Single Other Class 8	Electricity	0.13%	0.13%	0.00	0.00	0.00	0.00	0.20	0.06
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	0.00	0.03	0.61	0.00	0.02	0.01
T7 SWCV Class 8	Diesel	0.00%	0.00%	0.00	0.08	0.00	0.00	0.00	0.00
T7 SWCV Class 8	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.03	0.01
T7 SWCV Class 8	Natural Gas	0.02%	0.02%	0.00	0.07	1.56	0.00	0.07	0.03

T7 Tractor Class 8	Diesel	0.89%	0.89%	0.18	19.14	0.58	0.21	2.51	1.09
T7 Tractor Class 8	Electricity	0.18%	0.18%	0.00	0.00	0.00	0.00	0.28	0.08
T7 Tractor Class 8	Natural Gas	0.02%	0.02%	0.01	0.08	1.39	0.00	0.06	0.02
T7 Utility Class 8	Diesel	0.01%	0.01%	0.00	0.11	0.01	0.00	0.02	0.01
T7 Utility Class 8	Electricity	0.01%	0.01%	0.00	0.00	0.00	0.00	0.01	0.00
T7IS	Gasoline	0.00%	0.00%	0.00	0.01	0.09	0.00	0.00	0.00
T7IS	Electricity	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	Gasoline	0.02%	0.02%	0.00	0.01	0.23	0.00	0.04	0.01
UBUS	Electricity	0.12%	0.12%	0.00	0.00	0.00	0.00	0.19	0.06
		100%	100%	11	167	930	6	51	18

Year 2045 Current General Plan: Greenhouse Gas Emissions

Source: EMFAC2021 (v1.0.2) Emission Rates, Riverside (SC) Sub-area, Average Speed, Average Fleet

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 (Pavley)	CH_4	N_2O
Daily VMT	**1,321,564**	AR5 GWP	AR5 GWP	AR5 GWP
Annual VMT	**458,582,708**	1	28	265

Vehicle Type	Fuel Type	Percent of VMT	Adjusted Percent of VMT	CO_2	CH_4	N_2O	CO_2e
All Other Buses	Diesel	0.02%	0.02%	89	0.00	0.01	93
All Other Buses	Natural Gas	0.01%	0.01%	19	0.01	0.00	20
LDA	Gasoline	41.11%	41.11%	42,917	0.19	0.60	43,081
LDA	Diesel	0.03%	0.03%	21	0.00	0.00	22
LDA	Electricity	5.15%	5.15%	0	0.00	0.00	0
LDA	Plug-in Hybrid	1.93%	1.93%	994	0.00	0.00	995
LDT1	Gasoline	2.63%	2.63%	3,184	0.01	0.04	3,196
LDT1	Diesel	0.00%	0.00%	0	0.00	0.00	0
LDT1	Electricity	0.07%	0.07%	0	0.00	0.00	0
LDT1	Plug-in Hybrid	0.06%	0.06%	31	0.00	0.00	32
LDT2	Gasoline	22.14%	22.14%	27,693	0.14	0.35	27,789
LDT2	Diesel	0.08%	0.08%	97	0.00	0.02	101
LDT2	Electricity	0.57%	0.57%	0	0.00	0.00	0
LDT2	Plug-in Hybrid	0.60%	0.60%	310	0.00	0.00	310
LHD1	Gasoline	0.79%	0.79%	1,765	0.00	0.01	1,767
LHD1	Diesel	0.55%	0.55%	1,152	0.00	0.18	1,200
LHD1	Electricity	1.05%	1.05%	0	0.00	0.00	0
LHD2	Gasoline	0.09%	0.09%	235	0.00	0.00	235
LHD2	Diesel	0.26%	0.26%	656	0.00	0.10	684
LHD2	Electricity	0.25%	0.25%	0	0.00	0.00	0
MCY	Gasoline	0.25%	0.25%	213	0.15	0.04	228
MDV	Gasoline	12.89%	12.89%	19,599	0.09	0.22	19,659
MDV	Diesel	0.14%	0.14%	216	0.00	0.03	225
MDV	Electricity	0.53%	0.53%	0	0.00	0.00	0
MDV	Plug-in Hybrid	0.38%	0.38%	195	0.00	0.00	196
MH	Gasoline	0.03%	0.03%	274	0.00	0.00	275
MH	Diesel	0.02%	0.02%	91	0.00	0.01	95
Motor Coach	Diesel	0.01%	0.01%	76	0.00	0.01	79
OBUS	Gasoline	0.01%	0.01%	59	0.00	0.00	60
OBUS	Electricity	0.01%	0.01%	0	0.00	0.00	0
PTO	Diesel	0.06%	0.06%	489	0.00	0.08	509
PTO	Electricity	0.06%	0.06%	0	0.00	0.00	0
SBUS	Gasoline	0.01%	0.01%	56	0.00	0.00	56
SBUS	Diesel	0.01%	0.01%	31	0.00	0.00	32
SBUS	Electricity	0.02%	0.02%	0	0.00	0.00	0
SBUS	Natural Gas	0.02%	0.02%	109	0.25	0.02	122
T6 CAIRP Class 4	Diesel	0.00%	0.00%	2	0.00	0.00	2
T6 CAIRP Class 4	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 CAIRP Class 5	Diesel	0.00%	0.00%	2	0.00	0.00	2
T6 CAIRP Class 5	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 CAIRP Class 6	Diesel	0.00%	0.00%	6	0.00	0.00	6
T6 CAIRP Class 6	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 CAIRP Class 7	Diesel	0.02%	0.02%	63	0.00	0.01	66
T6 CAIRP Class 7	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 CAIRP Class 7	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Instate Delivery Class 4	Diesel	0.02%	0.02%	103	0.00	0.02	107
T6 Instate Delivery Class 4	Electricity	0.02%	0.02%	0	0.00	0.00	0
T6 Instate Delivery Class 4	Natural Gas	0.00%	0.00%	1	0.00	0.00	1
T6 Instate Delivery Class 5	Diesel	0.02%	0.02%	98	0.00	0.02	102
T6 Instate Delivery Class 5	Electricity	0.02%	0.02%	0	0.00	0.00	0
T6 Instate Delivery Class 5	Natural Gas	0.00%	0.00%	1	0.00	0.00	1
T6 Instate Delivery Class 6	Diesel	0.06%	0.06%	284	0.00	0.04	296
T6 Instate Delivery Class 6	Electricity	0.07%	0.07%	0	0.00	0.00	0
T6 Instate Delivery Class 6	Natural Gas	0.00%	0.00%	2	0.00	0.00	2
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	85	0.00	0.01	88
T6 Instate Delivery Class 7	Electricity	0.01%	0.01%	0	0.00	0.00	0
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.00%	2	0.00	0.00	2

T6 Instate Other Class 4	Diesel	0.09%	0.09%	420	0.00	0.07	438
T6 Instate Other Class 4	Electricity	0.11%	0.11%	0	0.00	0.00	0
T6 Instate Other Class 4	Natural Gas	0.00%	0.00%	2	0.00	0.00	3
T6 Instate Other Class 5	Diesel	0.24%	0.24%	1,063	0.00	0.17	1,108
T6 Instate Other Class 5	Electricity	0.27%	0.27%	0	0.00	0.00	0
T6 Instate Other Class 5	Natural Gas	0.00%	0.00%	6	0.00	0.00	6
T6 Instate Other Class 6	Diesel	0.16%	0.16%	743	0.00	0.12	775
T6 Instate Other Class 6	Electricity	0.19%	0.19%	0	0.00	0.00	0
T6 Instate Other Class 6	Natural Gas	0.00%	0.00%	4	0.00	0.00	5
T6 Instate Other Class 7	Diesel	0.11%	0.11%	486	0.00	0.08	506
T6 Instate Other Class 7	Electricity	0.08%	0.08%	0	0.00	0.00	0
T6 Instate Other Class 7	Natural Gas	0.00%	0.00%	9	0.01	0.00	10
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	5	0.00	0.00	6
T6 Instate Tractor Class 6	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 Instate Tractor Class 6	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Instate Tractor Class 7	Diesel	0.07%	0.07%	269	0.00	0.04	280
T6 Instate Tractor Class 7	Electricity	0.02%	0.02%	0	0.00	0.00	0
T6 Instate Tractor Class 7	Natural Gas	0.00%	0.00%	5	0.00	0.00	6
T6 OOS Class 4	Diesel	0.00%	0.00%	2	0.00	0.00	2
T6 OOS Class 5	Diesel	0.00%	0.00%	3	0.00	0.00	3
T6 OOS Class 6	Diesel	0.00%	0.00%	8	0.00	0.00	8
T6 OOS Class 7	Diesel	0.01%	0.01%	53	0.00	0.01	55
T6 Public Class 4	Diesel	0.00%	0.00%	13	0.00	0.00	14
T6 Public Class 4	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 Public Class 4	Natural Gas	0.00%	0.00%	2	0.00	0.00	2
T6 Public Class 5	Diesel	0.01%	0.01%	24	0.00	0.00	25
T6 Public Class 5	Electricity	0.01%	0.01%	0	0.00	0.00	0
T6 Public Class 5	Natural Gas	0.00%	0.00%	4	0.00	0.00	4
T6 Public Class 6	Diesel	0.01%	0.01%	32	0.00	0.00	33
T6 Public Class 6	Electricity	0.01%	0.01%	0	0.00	0.00	0
T6 Public Class 6	Natural Gas	0.00%	0.00%	5	0.00	0.00	5
T6 Public Class 7	Diesel	0.02%	0.02%	72	0.00	0.01	75
T6 Public Class 7	Electricity	0.01%	0.01%	0	0.00	0.00	0
T6 Public Class 7	Natural Gas	0.00%	0.00%	10	0.01	0.00	11
T6 Utility Class 5	Diesel	0.01%	0.01%	31	0.00	0.00	32
T6 Utility Class 5	Electricity	0.01%	0.01%	0	0.00	0.00	0
T6 Utility Class 5	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Utility Class 6	Diesel	0.00%	0.00%	6	0.00	0.00	6
T6 Utility Class 6	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 Utility Class 6	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Utility Class 7	Diesel	0.00%	0.00%	8	0.00	0.00	8
T6 Utility Class 7	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 Utility Class 7	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6TS	Gasoline	0.05%	0.05%	341	0.00	0.00	341
T6TS	Electricity	0.06%	0.06%	0	0.00	0.00	0
T7 CAIRP Class 8	Diesel	1.02%	1.02%	5,938	0.00	0.94	6,186
T7 CAIRP Class 8	Electricity	0.30%	0.30%	0	0.00	0.00	0
T7 CAIRP Class 8	Natural Gas	0.00%	0.00%	17	0.02	0.00	19
T7 NNOOS Class 8	Diesel	1.57%	1.57%	8,710	0.00	1.37	9,073
T7 NOOS Class 8	Diesel	0.57%	0.57%	3,161	0.00	0.50	3,293
T7 POLA Class 8	Diesel	0.71%	0.71%	4,416	0.00	0.70	4,601
T7 POLA Class 8	Electricity	0.13%	0.13%	0	0.00	0.00	0
T7 POLA Class 8	Natural Gas	0.03%	0.03%	128	0.11	0.03	138
T7 Public Class 8	Diesel	0.02%	0.02%	139	0.00	0.02	145
T7 Public Class 8	Electricity	0.03%	0.03%	0	0.00	0.00	0
T7 Public Class 8	Natural Gas	0.03%	0.03%	133	0.11	0.03	144
T7 Single Concrete/Transit Mi	Diesel	0.08%	0.08%	528	0.00	0.08	550
T7 Single Concrete/Transit Mi	Electricity	0.11%	0.11%	0	0.00	0.00	0
T7 Single Concrete/Transit Mi	Natural Gas	0.01%	0.01%	30	0.03	0.01	33
T7 Single Dump Class 8	Diesel	0.08%	0.08%	529	0.00	0.08	551
T7 Single Dump Class 8	Electricity	0.07%	0.07%	0	0.00	0.00	0
T7 Single Dump Class 8	Natural Gas	0.01%	0.01%	31	0.03	0.01	33
T7 Single Other Class 8	Diesel	0.13%	0.13%	842	0.00	0.13	877
T7 Single Other Class 8	Electricity	0.13%	0.13%	0	0.00	0.00	0
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	48	0.04	0.01	52
T7 SWCV Class 8	Diesel	0.00%	0.00%	7	0.00	0.00	7
T7 SWCV Class 8	Electricity	0.01%	0.01%	0	0.00	0.00	0
T7 SWCV Class 8	Natural Gas	0.02%	0.02%	63	0.01	0.01	66

T7 Tractor Class 8	Diesel	0.89%	0.89%	5,185	0.00	0.82	5,402
T7 Tractor Class 8	Electricity	0.18%	0.18%	0	0.00	0.00	0
T7 Tractor Class 8	Natural Gas	0.02%	0.02%	115	0.10	0.02	125
T7 Utility Class 8	Diesel	0.01%	0.01%	50	0.00	0.01	52
T7 Utility Class 8	Electricity	0.01%	0.01%	0	0.00	0.00	0
T7IS	Gasoline	0.00%	0.00%	1	0.00	0.00	1
T7IS	Electricity	0.00%	0.00%	0	0.00	0.00	0
UBUS	Gasoline	0.02%	0.02%	51	0.00	0.00	52
UBUS	Electricity	0.12%	0.12%	0	0.00	0.00	0
		100%	100%	134,971	1	7	136,901

Year 2045 General Plan Update: Greenhouse Gas Emissions

Source: EMFAC2021 (v1.0.2) Emission Rates, Riverside (SC) Subarea, Average Speed, Average Fleet

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.

Daily VMT	**1,451,849**
Annual VMT	**503,791,659**

				CO_2 (Pavley)	**CH_4**	**N_2O**	
				AR5 GWP	AR5 GWP	AR5 GWP	
				1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**Adjusted Percent of VMT**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
All Other Buses	Diesel	0.02%	0.02%	98	0.00	0.02	102
All Other Buses	Natural Gas	0.01%	0.01%	21	0.01	0.00	22
LDA	Gasoline	41.11%	41.11%	47,148	0.21	0.66	47,328
LDA	Diesel	0.03%	0.03%	23	0.00	0.00	24
LDA	Electricity	5.15%	5.15%	0	0.00	0.00	0
LDA	Plug-in Hybrid	1.93%	1.93%	1,092	0.00	0.00	1,094
LDT1	Gasoline	2.63%	2.63%	3,498	0.01	0.04	3,511
LDT1	Diesel	0.00%	0.00%	0	0.00	0.00	0
LDT1	Electricity	0.07%	0.07%	0	0.00	0.00	0
LDT1	Plug-in Hybrid	0.06%	0.06%	35	0.00	0.00	35
LDT2	Gasoline	22.14%	22.14%	30,423	0.15	0.38	30,528
LDT2	Diesel	0.08%	0.08%	107	0.00	0.02	111
LDT2	Electricity	0.57%	0.57%	0	0.00	0.00	0
LDT2	Plug-in Hybrid	0.60%	0.60%	341	0.00	0.00	341
LHD1	Gasoline	0.79%	0.79%	1,939	0.00	0.01	1,942
LHD1	Diesel	0.55%	0.55%	1,265	0.01	0.20	1,318
LHD1	Electricity	1.05%	1.05%	0	0.00	0.00	0
LHD2	Gasoline	0.09%	0.09%	258	0.00	0.00	259
LHD2	Diesel	0.26%	0.26%	721	0.00	0.11	751
LHD2	Electricity	0.25%	0.25%	0	0.00	0.00	0
MCY	Gasoline	0.25%	0.25%	234	0.16	0.04	250
MDV	Gasoline	12.89%	12.89%	21,531	0.10	0.24	21,597
MDV	Diesel	0.14%	0.14%	237	0.00	0.04	247
MDV	Electricity	0.53%	0.53%	0	0.00	0.00	0
MDV	Plug-in Hybrid	0.38%	0.38%	215	0.00	0.00	215
MH	Gasoline	0.03%	0.03%	301	0.00	0.00	302
MH	Diesel	0.02%	0.02%	100	0.00	0.02	104
Motor Coach	Diesel	0.01%	0.01%	83	0.00	0.01	87
OBUS	Gasoline	0.01%	0.01%	65	0.00	0.00	65
OBUS	Electricity	0.01%	0.01%	0	0.00	0.00	0
PTO	Diesel	0.06%	0.06%	537	0.00	0.08	559
PTO	Electricity	0.06%	0.06%	0	0.00	0.00	0
SBUS	Gasoline	0.01%	0.01%	61	0.00	0.00	61
SBUS	Diesel	0.01%	0.01%	34	0.00	0.01	35
SBUS	Electricity	0.02%	0.02%	0	0.00	0.00	0
SBUS	Natural Gas	0.02%	0.02%	120	0.28	0.02	134
T6 CAIRP Class 4	Diesel	0.00%	0.00%	2	0.00	0.00	2
T6 CAIRP Class 4	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 CAIRP Class 5	Diesel	0.00%	0.00%	3	0.00	0.00	3
T6 CAIRP Class 5	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 CAIRP Class 6	Diesel	0.00%	0.00%	7	0.00	0.00	7
T6 CAIRP Class 6	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 CAIRP Class 7	Diesel	0.02%	0.02%	69	0.00	0.01	72
T6 CAIRP Class 7	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 CAIRP Class 7	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Instate Delivery Class 4	Diesel	0.02%	0.02%	113	0.00	0.02	117
T6 Instate Delivery Class 4	Electricity	0.02%	0.02%	0	0.00	0.00	0
T6 Instate Delivery Class 4	Natural Gas	0.00%	0.00%	1	0.00	0.00	1
T6 Instate Delivery Class 5	Diesel	0.02%	0.02%	108	0.00	0.02	112
T6 Instate Delivery Class 5	Electricity	0.02%	0.02%	0	0.00	0.00	0
T6 Instate Delivery Class 5	Natural Gas	0.00%	0.00%	1	0.00	0.00	1
T6 Instate Delivery Class 6	Diesel	0.06%	0.06%	312	0.00	0.05	325
T6 Instate Delivery Class 6	Electricity	0.07%	0.07%	0	0.00	0.00	0
T6 Instate Delivery Class 6	Natural Gas	0.00%	0.00%	2	0.00	0.00	2
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	93	0.00	0.01	97
T6 Instate Delivery Class 7	Electricity	0.01%	0.01%	0	0.00	0.00	0
T6 Instate Delivery Class 7	Natural Gas	0.00%	0.00%	2	0.00	0.00	2

T6 Instate Other Class 4	Diesel	0.09%	0.09%	462	0.00	0.07	481
T6 Instate Other Class 4	Electricity	0.11%	0.11%	0	0.00	0.00	0
T6 Instate Other Class 4	Natural Gas	0.00%	0.00%	3	0.00	0.00	3
T6 Instate Other Class 5	Diesel	0.24%	0.24%	1,168	0.00	0.18	1,217
T6 Instate Other Class 5	Electricity	0.27%	0.27%	0	0.00	0.00	0
T6 Instate Other Class 5	Natural Gas	0.00%	0.00%	7	0.00	0.00	7
T6 Instate Other Class 6	Diesel	0.16%	0.16%	817	0.00	0.13	851
T6 Instate Other Class 6	Electricity	0.19%	0.19%	0	0.00	0.00	0
T6 Instate Other Class 6	Natural Gas	0.00%	0.00%	5	0.00	0.00	5
T6 Instate Other Class 7	Diesel	0.11%	0.11%	533	0.00	0.08	556
T6 Instate Other Class 7	Electricity	0.08%	0.08%	0	0.00	0.00	0
T6 Instate Other Class 7	Natural Gas	0.00%	0.00%	10	0.01	0.00	11
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	6	0.00	0.00	6
T6 Instate Tractor Class 6	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 Instate Tractor Class 6	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Instate Tractor Class 7	Diesel	0.07%	0.07%	295	0.00	0.05	308
T6 Instate Tractor Class 7	Electricity	0.02%	0.02%	0	0.00	0.00	0
T6 Instate Tractor Class 7	Natural Gas	0.00%	0.00%	6	0.00	0.00	6
T6 OOS Class 4	Diesel	0.00%	0.00%	2	0.00	0.00	3
T6 OOS Class 5	Diesel	0.00%	0.00%	3	0.00	0.00	4
T6 OOS Class 6	Diesel	0.00%	0.00%	9	0.00	0.00	9
T6 OOS Class 7	Diesel	0.01%	0.01%	58	0.00	0.01	61
T6 Public Class 4	Diesel	0.00%	0.00%	15	0.00	0.00	15
T6 Public Class 4	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 Public Class 4	Natural Gas	0.00%	0.00%	2	0.00	0.00	2
T6 Public Class 5	Diesel	0.01%	0.01%	27	0.00	0.00	28
T6 Public Class 5	Electricity	0.01%	0.01%	0	0.00	0.00	0
T6 Public Class 5	Natural Gas	0.00%	0.00%	4	0.00	0.00	4
T6 Public Class 6	Diesel	0.01%	0.01%	35	0.00	0.01	36
T6 Public Class 6	Electricity	0.01%	0.01%	0	0.00	0.00	0
T6 Public Class 6	Natural Gas	0.00%	0.00%	5	0.00	0.00	5
T6 Public Class 7	Diesel	0.02%	0.02%	80	0.00	0.01	83
T6 Public Class 7	Electricity	0.01%	0.01%	0	0.00	0.00	0
T6 Public Class 7	Natural Gas	0.00%	0.00%	12	0.01	0.00	12
T6 Utility Class 5	Diesel	0.01%	0.01%	34	0.00	0.01	35
T6 Utility Class 5	Electricity	0.01%	0.01%	0	0.00	0.00	0
T6 Utility Class 5	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Utility Class 6	Diesel	0.00%	0.00%	6	0.00	0.00	7
T6 Utility Class 6	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 Utility Class 6	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6 Utility Class 7	Diesel	0.00%	0.00%	9	0.00	0.00	9
T6 Utility Class 7	Electricity	0.00%	0.00%	0	0.00	0.00	0
T6 Utility Class 7	Natural Gas	0.00%	0.00%	0	0.00	0.00	0
T6TS	Gasoline	0.05%	0.05%	374	0.00	0.00	375
T6TS	Electricity	0.06%	0.06%	0	0.00	0.00	0
T7 CAIRP Class 8	Diesel	1.02%	1.02%	6,524	0.00	1.03	6,796
T7 CAIRP Class 8	Electricity	0.30%	0.30%	0	0.00	0.00	0
T7 CAIRP Class 8	Natural Gas	0.00%	0.00%	19	0.02	0.00	20
T7 NNOOS Class 8	Diesel	1.57%	1.57%	9,568	0.00	1.51	9,968
T7 NOOS Class 8	Diesel	0.57%	0.57%	3,472	0.00	0.55	3,617
T7 POLA Class 8	Diesel	0.71%	0.71%	4,851	0.00	0.76	5,054
T7 POLA Class 8	Electricity	0.13%	0.13%	0	0.00	0.00	0
T7 POLA Class 8	Natural Gas	0.03%	0.03%	141	0.13	0.03	152
T7 Public Class 8	Diesel	0.02%	0.02%	153	0.00	0.02	159
T7 Public Class 8	Electricity	0.03%	0.03%	0	0.00	0.00	0
T7 Public Class 8	Natural Gas	0.03%	0.03%	146	0.13	0.03	158
T7 Single Concrete/Transit Mi	Diesel	0.08%	0.08%	580	0.00	0.09	604
T7 Single Concrete/Transit Mi	Electricity	0.11%	0.11%	0	0.00	0.00	0
T7 Single Concrete/Transit Mi	Natural Gas	0.01%	0.01%	33	0.03	0.01	36
T7 Single Dump Class 8	Diesel	0.08%	0.08%	581	0.00	0.09	606
T7 Single Dump Class 8	Electricity	0.07%	0.07%	0	0.00	0.00	0
T7 Single Dump Class 8	Natural Gas	0.01%	0.01%	34	0.03	0.01	36
T7 Single Other Class 8	Diesel	0.13%	0.13%	925	0.00	0.15	963
T7 Single Other Class 8	Electricity	0.13%	0.13%	0	0.00	0.00	0
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	53	0.05	0.01	57
T7 SWCV Class 8	Diesel	0.00%	0.00%	8	0.00	0.00	8
T7 SWCV Class 8	Electricity	0.01%	0.01%	0	0.00	0.00	0
T7 SWCV Class 8	Natural Gas	0.02%	0.02%	69	0.02	0.01	73

T7 Tractor Class 8	Diesel	0.89%	0.89%	5,696	0.00	0.90	5,934
T7 Tractor Class 8	Electricity	0.18%	0.18%	0	0.00	0.00	0
T7 Tractor Class 8	Natural Gas	0.02%	0.02%	127	0.11	0.03	137
T7 Utility Class 8	Diesel	0.01%	0.01%	55	0.00	0.01	58
T7 Utility Class 8	Electricity	0.01%	0.01%	0	0.00	0.00	0
T7IS	Gasoline	0.00%	0.00%	2	0.00	0.00	2
T7IS	Electricity	0.00%	0.00%	0	0.00	0.00	0
UBUS	Gasoline	0.02%	0.02%	57	0.00	0.00	57
UBUS	Electricity	0.12%	0.12%	0	0.00	0.00	0
		100%	100%	148,277	1	8	150,397

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: Riverside (SC)
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

2.20E-03

Vehicle Category	Fuel	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	VMT Total	% of VMT
All Other Buses	Diesel	0.0197389	0.6449012	0.0867279	0.0088474	0.0141245	0.012	0.0421264	0.068251	0.0135135	0.003	0.0147443	0.0312578	934.3154	0.0009168	0.1472018	10928.51423	0.021%
All Other Buses	Natural Gas	0.0069364	0.0601799	1.5629951	0	0.0009506	0.012	0.0421264	0.0550771	0.0008741	0.003	0.0147443	0.0186183	685.32966	0.4854728	0.1397089	3180.5808	0.006%
LDA	Gasoline	0.0028696	0.0190894	0.4910659	0.0022504	0.0004974	0.008	0.0069833	0.0154807	0.0004573	0.002	0.0024441	0.0049015	227.63041	0.0010011	0.0031727	21566774.17	41.114%
LDA	Diesel	0.0047092	0.0209061	0.13394	0.0017484	0.001386	0.008	0.0070143	0.0164004	0.0013261	0.002	0.002455	0.0057811	184.52305	0.0002187	0.0290717	13126.41234	0.025%
LDA	Electricity	0	0	0	0	0	0.008	0.0043924	0.0123924	0	0.002	0.0015373	0.0035373	0	0	0	2701747.214	5.150%
LDA	Plug-in Hybrid	0.0010957	0.0024733	0.1829489	0.0011123	0.0002038	0.008	0.0039295	0.0121333	0.0001873	0.002	0.0013753	0.0035627	112.51496	0.0003392	0.0004297	1010915.897	1.927%
LDT1	Gasoline	0.003311	0.021681	0.5321731	0.0026128	0.0005578	0.008	0.0082707	0.0168284	0.0005128	0.002	0.0028947	0.0054076	264.29179	0.0011182	0.0033869	1378229.577	2.627%
LDT1	Diesel	0.0115227	0.0261387	0.1214718	0.0032157	0.0040133	0.008	0.0081824	0.0201957	0.0038397	0.002	0.0028638	0.0087035	339.37169	0.0005352	0.0534681	15.92326898	0.000%
LDT1	Electricity	0	0	0	0	0	0.008	0.0043941	0.0123941	0	0.002	0.0015379	0.0035379	0	0	0	38453.86724	0.073%
LDT1	Plug-in Hybrid	0.0010916	0.0024639	0.1822696	0.0011081	0.0001952	0.008	0.0039328	0.012128	0.0001795	0.002	0.0013765	0.003556	112.09147	0.0003381	0.0004286	32129.72615	0.061%
LDT2	Gasoline	0.0039916	0.0222795	0.5749694	0.0026959	0.0005125	0.008	0.0081609	0.0166734	0.0004712	0.002	0.0028563	0.0053275	272.69829	0.0013321	0.0034217	11616195.53	22.144%
LDT2	Diesel	0.0115098	0.0267494	0.120341	0.0023844	0.0039934	0.008	0.0081495	0.020143	0.0038207	0.002	0.0028523	0.008673	251.63736	0.0005346	0.0396456	44272.77467	0.084%
LDT2	Electricity	0	0	0	0	0	0.008	0.0043937	0.0123937	0	0.002	0.0015378	0.0035378	0	0	0	296847.493	0.566%
LDT2	Plug-in Hybrid	0.0010936	0.0024685	0.1826058	0.0011102	0.0001989	0.008	0.003932	0.0121309	0.0001829	0.002	0.0013762	0.0035591	112.29916	0.0003382	0.0004281	315773.4215	0.602%
LHD1	Gasoline	0.001631	0.0209036	0.5843447	0.0048203	0.0011074	0.008	0.078	0.0871074	0.0010182	0.002	0.0273	0.0303182	487.58784	0.0004862	0.0019009	414168.6108	0.790%
LHD1	Diesel	0.042028	0.2638494	0.0863504	0.0043651	0.0121592	0.012	0.078	0.1021592	0.0116332	0.003	0.0273	0.0419332	460.67196	0.0019521	0.0725791	286030.1577	0.545%
LHD1	Electricity	0	0	0	0	0	0.008	0.039	0.047	0	0.002	0.01365	0.01565	0	0	0	549811.5698	1.048%
LHD2	Gasoline	0.0014322	0.025123	0.594744	0.0054173	0.0010966	0.008	0.091	0.1000967	0.0010083	0.002	0.03185	0.0348583	547.97476	0.0004377	0.002514	49092.2567	0.094%
LHD2	Diesel	0.0563673	0.4407566	0.1242177	0.005119	0.0163541	0.012	0.091	0.1193542	0.0156467	0.003	0.03185	0.0504967	540.23138	0.0026182	0.0851137	138966.902	0.265%
LHD2	Electricity	0	0	0	0	0	0.008	0.0455	0.0535	0	0.002	0.015925	0.017925	0	0	0	133580.3338	0.255%
MCY	Gasoline	0.7699928	0.4538947	9.5055241	0.0018182	0.0021071	0.004	0.012	0.0181071	0.0019645	0.001	0.0042	0.0071645	183.9208	0.1296997	0.0345368	132399.5029	0.252%
MDV	Gasoline	0.0046556	0.0265865	0.6141515	0.0032765	0.0005334	0.008	0.0083312	0.0168646	0.0004905	0.002	0.0029159	0.0054064	331.42788	0.0014818	0.0036848	6764250.161	12.895%
MDV	Diesel	0.0047495	0.0192151	0.1404067	0.0031457	0.0013023	0.008	0.0083648	0.0176671	0.0012459	0.002	0.0029277	0.0061736	331.98666	0.0002206	0.0523046	74322.17767	0.142%
MDV	Electricity	0	0	0	0	0	0.008	0.0043993	0.0123993	0	0.002	0.0015398	0.0035398	0	0	0	276786.2049	0.528%
MDV	Plug-in Hybrid	0.0010949	0.0024713	0.1827738	0.0011114	0.0002036	0.008	0.0039367	0.0121403	0.0001872	0.002	0.0013778	0.0035651	112.41931	0.000337	0.0004246	198877.5537	0.379%
MH	Gasoline	0.0080376	0.1761346	0.1400881	0.0174048	0.0010016	0.012	0.042213	0.0552145	0.0009209	0.003	0.0147745	0.0186954	1760.5444	0.0029545	0.0168179	17815.95675	0.034%
MH	Diesel	0.0345527	1.9430812	0.1283558	0.0093546	0.041852	0.016	0.0421463	0.0999983	0.0400415	0.004	0.0147512	0.0587927	987.24513	0.0016049	0.1555409	10519.8828	0.020%
Motor Coach	Diesel	0.0090902	0.8140938	0.0421934	0.0140647	0.0183132	0.012	0.0853421	0.1156553	0.017521	0.003	0.0298698	0.0503907	1485.2788	0.0004222	0.2340063	5832.301835	0.011%
OBUS	Gasoline	0.0143823	0.2225744	0.3420057	0.0140237	0.0009173	0.012	0.0421264	0.0550437	0.0008434	0.003	0.0147443	0.0185877	1418.5436	0.0032648	0.0138194	4793.177046	0.009%
OBUS	Electricity	0	0	0	0	0	0.012	0.0210632	0.0330632	0	0.003	0.0073721	0.0103721	0	0	0	5483.4075	0.010%
PTO	Diesel	0.0142738	2.4349651	0.1773539	0.016482	0.0038908	0	0	0.0038908	0.0037225	0	0	0.0037225	1740.5531	0.000663	0.2742248	32109.60355	0.061%
PTO	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32570.5637	0.062%
SBUS	Gasoline	0.0111416	0.1680838	0.2136588	0.0082213	0.0015914	0.008	0.046845	0.0564364	0.0014632	0.002	0.0163958	0.019859	831.61095	0.0025253	0.0144524	7638.563692	0.015%
SBUS	Diesel	0.0130839	0.5255674	0.0738875	0.010662	0.0038476	0.012	0.046845	0.0626926	0.0036811	0.003	0.0163958	0.0230769	1125.9423	0.0006077	0.1773927	3112.156038	0.006%
SBUS	Electricity	0	0	0	0	0	0.011161	0.0234225	0.0345832	0	0.0027902	0.0081979	0.010988	0	0	0	12125.07552	0.023%
SBUS	Natural Gas	0.0491736	0.3335099	10.126803	0	0.0044829	0.012	0.046845	0.0633279	0.0041218	0.003	0.0163958	0.0235176	1478.8803	3.4415938	0.3014794	8445.076566	0.016%
T6 CAIRP Class 4	Diesel	0.004743	0.1657201	0.0278305	0.0093541	0.0046296	0.012	0.0420806	0.0587101	0.0044293	0.003	0.0147282	0.0221575	987.82503	0.0002203	0.1556322	200.7099949	0.000%
T6 CAIRP Class 4	Electricity	0	0	0	0	0	0.012	0.0210403	0.0330403	0	0.003	0.0073641	0.0103641	0	0	0	283.1614177	0.001%
T6 CAIRP Class 5	Diesel	0.004752	0.1668118	0.0278707	0.0093575	0.0046382	0.012	0.0420806	0.0587188	0.0044375	0.003	0.0147282	0.0221657	988.18094	0.0002207	0.1556883	275.8051205	0.001%
T6 CAIRP Class 5	Electricity	0	0	0	0	0	0.012	0.0210403	0.0330403	0	0.003	0.0073641	0.0103641	0	0	0	387.9794461	0.001%
T6 CAIRP Class 6	Diesel	0.0047321	0.166732	0.0277794	0.0093451	0.0046481	0.012	0.0420806	0.0587287	0.0044471	0.003	0.0147282	0.0221753	986.87599	0.0002198	0.1554827	717.4144022	0.001%
T6 CAIRP Class 6	Electricity	0	0	0	0	0	0.012	0.0210403	0.0330403	0	0.003	0.0073641	0.0103641	0	0	0	1017.073661	0.002%
T6 CAIRP Class 7	Diesel	0.0050973	0.1820723	0.0299211	0.0082557	0.0049229	0.012	0.0420806	0.0590035	0.0047099	0.003	0.0147282	0.0224381	871.83271	0.0002368	0.1373576	8257.437247	0.016%
T6 CAIRP Class 7	Electricity	0	0	0	0	0	0.012	0.0210403	0.0330403	0	0.003	0.0073641	0.0103641	0	0	0	2616.71477	0.005%
T6 CAIRP Class 7	Natural Gas	0.0069655	0.0430835	1.3089701	0	0.0010336	0.012	0.0420806	0.0551142	0.0009503	0.003	0.0147282	0.0186785	704.60414	0.4875027	0.1436382	5.43382181	0.000%
T6 Instate Delivery Class 4	Diesel	0.004847	0.1905811	0.0314085	0.0093176	0.0044249	0.012	0.0422722	0.0586972	0.0042335	0.003	0.0147953	0.0220288	983.96583	0.0002251	0.1550242	11928.82114	0.023%
T6 Instate Delivery Class 4	Electricity	0	0	0	0	0	0.012	0.0211361	0.0331361	0	0.003	0.0073976	0.0103976	0	0	0	12941.98729	0.025%
T6 Instate Delivery Class 4	Natural Gas	0.0072404	0.0447185	1.4720068	0	0.0010721	0.012	0.0422722	0.0553443	0.0009858	0.003	0.0147953	0.0187811	741.8243	0.5067476	0.1512257	90.5895969	0.000%
T6 Instate Delivery Class 5	Diesel	0.0048422	0.1873029	0.0313258	0.009331	0.0044097	0.012	0.0422722	0.0586819	0.004219	0.003	0.0147953	0.0220142	985.38047	0.0002249	0.1552471	11409.82078	0.022%
T6 Instate Delivery Class 5	Electricity	0	0	0	0	0	0.012	0.0211361	0.0331361	0	0.003	0.0073976	0.0103976	0	0	0	12398.08064	0.024%
T6 Instate Delivery Class 5	Natural Gas	0.0072443	0.0444983	1.4701441	0	0.0010736	0.012	0.0422722	0.0553458	0.0009871	0.003	0.0147953	0.0187824	741.21695	0.5070202	0.1511019	85.31088645	0.000%
T6 Instate Delivery Class 6	Diesel	0.0048496	0.1944152	0.0314573	0.0093129	0.0044461	0.012	0.0422722	0.0587183	0.0042538	0.003	0.0147953	0.0220491	983.47662	0.0002253	0.1549471	33002.69246	0.063%

T6 Instate Delivery Class 6	Electricity	0	0	0	0	0	0.012	0.0211361	0.0331361	0	0.003	0.0073976	0.0103976	0	0	0	35810.33242	0.068%
T6 Instate Delivery Class 6	Natural Gas	0.0072395	0.0447709	1.4724496	0	0.0010718	0.012	0.0422722	0.055344	0.0009855	0.003	0.0147953	0.0187807	741.52351	0.5066828	0.1511644	249.3258522	0.000%
T6 Instate Delivery Class 7	Diesel	0.0067635	0.3950743	0.0399396	0.0094171	0.0060581	0.012	0.0422722	0.0603303	0.005796	0.003	0.0147953	0.0235913	994.48053	0.0003141	0.1566808	9771.289088	0.019%
T6 Instate Delivery Class 7	Electricity	0	0	0	0	0	0.012	0.0211361	0.0331361	0	0.003	0.0073976	0.0103976	0	0	0	6037.958894	0.012%
T6 Instate Delivery Class 7	Natural Gas	0.0067694	0.0727115	1.7076606	0	0.0008977	0.012	0.0422722	0.0551699	0.0008254	0.003	0.0147953	0.0186207	760.38944	0.4737817	0.1550104	241.9405349	0.000%
T6 Instate Other Class 4	Diesel	0.004844	0.1856756	0.0309398	0.0093106	0.0044612	0.012	0.0422525	0.0587137	0.0042682	0.003	0.0147884	0.0220566	983.22855	0.000225	0.1549081	48875.62666	0.093%
T6 Instate Other Class 4	Electricity	0	0	0	0	0	0.012	0.0211262	0.0331263	0	0.003	0.0073942	0.0103942	0	0	0	56204.40424	0.107%
T6 Instate Other Class 4	Natural Gas	0.0072069	0.0442068	1.4456672	0	0.001069	0.012	0.0422525	0.0553215	0.0009829	0.003	0.0147884	0.0187713	739.18544	0.5044033	0.1506878	373.1832099	0.001%
T6 Instate Other Class 5	Diesel	0.0048526	0.1832152	0.0308939	0.0093177	0.004453	0.012	0.0422525	0.0587055	0.0042604	0.003	0.0147884	0.0220487	983.97541	0.0002254	0.1550257	123627.56	0.236%
T6 Instate Other Class 5	Electricity	0	0	0	0	0	0.012	0.0211262	0.0331263	0	0.003	0.0073942	0.0103942	0	0	0	141977.4976	0.271%
T6 Instate Other Class 5	Natural Gas	0.0072109	0.0439857	1.4437495	0	0.0010704	0.012	0.0422525	0.0553229	0.0009842	0.003	0.0147884	0.0187726	738.22373	0.5046785	0.1504917	932.2608003	0.002%
T6 Instate Other Class 6	Diesel	0.0048544	0.1877905	0.0309606	0.0093097	0.0044824	0.012	0.0422525	0.0587349	0.0042885	0.003	0.0147884	0.0220768	983.13073	0.0002255	0.1548926	86505.0734	0.165%
T6 Instate Other Class 6	Electricity	0	0	0	0	0	0.012	0.0211262	0.0331263	0	0.003	0.0073942	0.0103942	0	0	0	99258.95258	0.189%
T6 Instate Other Class 6	Natural Gas	0.0072073	0.0441863	1.4454894	0	0.0010691	0.012	0.0422525	0.0553216	0.000983	0.003	0.0147884	0.0187714	738.50362	0.5044288	0.1505488	654.9274226	0.001%
T6 Instate Other Class 7	Diesel	0.0061642	0.3200255	0.0368241	0.0093666	0.005601	0.012	0.0422525	0.0598535	0.0053587	0.003	0.0147884	0.0231471	989.13953	0.0002863	0.1558393	56157.31714	0.107%
T6 Instate Other Class 7	Electricity	0	0	0	0	0	0.012	0.0211262	0.0331263	0	0.003	0.0073942	0.0103942	0	0	0	42103.92817	0.080%
T6 Instate Other Class 7	Natural Gas	0.0068818	0.0634166	1.6113147	0	0.000949	0.012	0.0422525	0.0552015	0.0008726	0.003	0.0147884	0.018661	753.17868	0.4816477	0.1535404	1370.819559	0.003%
T6 Instate Tractor Class 6	Diesel	0.0048158	0.1917714	0.0306171	0.0092914	0.0044691	0.012	0.0422525	0.0587216	0.0042758	0.003	0.0147884	0.0220642	981.20056	0.0002237	0.1545885	634.0963847	0.001%
T6 Instate Tractor Class 6	Electricity	0	0	0	0	0	0.012	0.0211262	0.0331263	0	0.003	0.0073942	0.0103942	0	0	0	763.2961548	0.001%
T6 Instate Tractor Class 6	Natural Gas	0.0072079	0.0441539	1.4452083	0	0.0010693	0.012	0.0422525	0.0553218	0.0009832	0.003	0.0147884	0.0187716	738.53728	0.5044691	0.1505557	4.797423431	0.000%
T6 Instate Tractor Class 7	Diesel	0.0059458	0.3139348	0.0361539	0.0084799	0.0054861	0.012	0.0422525	0.0597386	0.0052488	0.003	0.0147884	0.0230372	895.50167	0.0002762	0.1410867	34350.46394	0.065%
T6 Instate Tractor Class 7	Electricity	0	0	0	0	0	0.012	0.0211262	0.0331263	0	0.003	0.0073942	0.0103942	0	0	0	8161.923929	0.016%
T6 Instate Tractor Class 7	Natural Gas	0.0069031	0.0622319	1.6010287	0	0.000957	0.012	0.0422525	0.0552095	0.0008799	0.003	0.0147884	0.0186683	736.23171	0.4831365	0.1500856	824.5480804	0.002%
T6 OOS Class 4	Diesel	0.0046423	0.2072441	0.0272164	0.0087761	0.0047804	0.012	0.0420806	0.058861	0.0045736	0.003	0.0147282	0.0223018	926.78309	0.0002156	0.1460151	279.1246702	0.001%
T6 OOS Class 5	Diesel	0.0046595	0.2091173	0.0272862	0.0087819	0.0047952	0.012	0.0420806	0.0588758	0.0045878	0.003	0.0147282	0.022316	927.40119	0.0002164	0.1461124	382.9088542	0.001%
T6 OOS Class 6	Diesel	0.0046214	0.2052101	0.027124	0.0087605	0.0047625	0.012	0.0420806	0.0588431	0.0045565	0.003	0.0147282	0.0222847	925.13342	0.0002146	0.1457551	1000.551791	0.002%
T6 OOS Class 7	Diesel	0.0049848	0.2170104	0.0292625	0.0078954	0.0050457	0.012	0.0420806	0.0591263	0.0048274	0.003	0.0147282	0.0225556	833.7761	0.0002315	0.1313618	7275.255697	0.014%
T6 Public Class 4	Diesel	0.0058847	0.3708787	0.0313675	0.0094562	0.0053977	0.012	0.0421463	0.0595439	0.0051642	0.003	0.0147512	0.0229154	998.60696	0.0002733	0.1573309	1526.652805	0.003%
T6 Public Class 4	Electricity	0	0	0	0	0	0.012	0.0210731	0.0330731	0	0.003	0.0073756	0.0103756	0	0	0	1566.872882	0.003%
T6 Public Class 4	Natural Gas	0.0070533	0.0439777	1.3693304	0	0.0010444	0.012	0.0421463	0.0551907	0.0009603	0.003	0.0147512	0.0187115	732.45955	0.493654	0.1493167	284.6897426	0.001%
T6 Public Class 5	Diesel	0.0064497	0.3803927	0.0328935	0.009524	0.0056315	0.012	0.0421463	0.0597778	0.0053879	0.003	0.0147512	0.0231391	1005.7622	0.0002996	0.1584582	2766.450086	0.005%
T6 Public Class 5	Electricity	0	0	0	0	0	0.012	0.0210731	0.0330731	0	0.003	0.0073756	0.0103756	0	0	0	2845.543017	0.005%
T6 Public Class 5	Natural Gas	0.0068759	0.055457	1.4749349	0	0.0009813	0.012	0.0421463	0.0551275	0.0009022	0.003	0.0147512	0.0186534	737.72822	0.4812334	0.1503907	574.9068522	0.001%
T6 Public Class 6	Diesel	0.005485	0.2880524	0.0301428	0.0094563	0.0051504	0.012	0.0421463	0.0592966	0.0049276	0.003	0.0147512	0.0226787	998.61311	0.0002548	0.1573319	3626.841404	0.007%
T6 Public Class 6	Electricity	0	0	0	0	0	0.012	0.0210731	0.0330731	0	0.003	0.0073756	0.0103756	0	0	0	3660.859522	0.007%
T6 Public Class 6	Natural Gas	0.0070243	0.0460858	1.3883636	0	0.0010343	0.012	0.0421463	0.0551806	0.000951	0.003	0.0147512	0.0187022	733.73731	0.4916216	0.1495772	704.8096129	0.001%
T6 Public Class 7	Diesel	0.0051034	0.2564491	0.0284698	0.0093459	0.0047923	0.012	0.0421463	0.0589386	0.004585	0.003	0.0147512	0.0223362	986.96096	0.000237	0.1554961	8399.406537	0.016%
T6 Public Class 7	Electricity	0	0	0	0	0	0.012	0.0210731	0.0330731	0	0.003	0.0073756	0.0103756	0	0	0	6910.082373	0.013%
T6 Public Class 7	Natural Gas	0.007036	0.0452452	1.3807576	0	0.0010384	0.012	0.0421463	0.0551847	0.0009548	0.003	0.0147512	0.018706	734.0777	0.4924436	0.1496465	1632.021321	0.003%
T6 Utility Class 5	Diesel	0.0037717	0.1235505	0.0229627	0.0092725	0.0038884	0.012	0.0421463	0.0580347	0.0037202	0.003	0.0147512	0.0214714	979.20652	0.0001752	0.1542744	3580.109994	0.007%
T6 Utility Class 5	Electricity	0	0	0	0	0	0.012	0.0210731	0.0330731	0	0.003	0.0073756	0.0103756	0	0	0	5122.410363	0.010%
T6 Utility Class 5	Natural Gas	0.0070793	0.0425544	1.3558315	0	0.0010539	0.012	0.0421463	0.0552002	0.000969	0.003	0.0147512	0.0187202	729.09158	0.4954737	0.1486301	20.57946177	0.000%
T6 Utility Class 6	Diesel	0.0037723	0.1208363	0.0229665	0.0092729	0.0038597	0.012	0.0421463	0.058006	0.0036928	0.003	0.0147512	0.021444	979.25162	0.0001752	0.1542815	676.8160691	0.001%
T6 Utility Class 6	Electricity	0	0	0	0	0	0.012	0.0210731	0.0330731	0	0.003	0.0073756	0.0103756	0	0	0	967.7826921	0.002%
T6 Utility Class 6	Natural Gas	0.0070793	0.0425544	1.3558315	0	0.0010539	0.012	0.0421463	0.0552002	0.000969	0.003	0.0147512	0.0187202	729.10228	0.4954737	0.1486323	3.890525834	0.000%
T6 Utility Class 7	Diesel	0.0037353	0.1177115	0.0227408	0.0092789	0.0038385	0.012	0.0421463	0.0579848	0.0036724	0.003	0.0147512	0.0214236	979.87837	0.0001735	0.1543802	926.889312	0.002%
T6 Utility Class 7	Electricity	0	0	0	0	0	0.012	0.0210731	0.0330731	0	0.003	0.0073756	0.0103756	0	0	0	1361.37886	0.003%
T6 Utility Class 7	Natural Gas	0.0070793	0.0425544	1.3558315	0	0.0010539	0.012	0.0421463	0.0552002	0.000969	0.003	0.0147512	0.0187202	729.10483	0.4954737	0.1486328	5.328015953	0.000%
T6TS	Gasoline	0.0078178	0.0637524	0.1608759	0.0137967	0.001033	0.012	0.042213	0.0552459	0.0009498	0.003	0.0147745	0.0187243	1395.5771	0.0020698	0.006205	27933.839	0.053%
T6TS	Electricity	0	0	0	0	0	0.012	0.0211065	0.0331065	0	0.003	0.0073873	0.0103873	0	0	0	32042.11589	0.061%
T7 CAIRP Class 8	Diesel	0.0107909	1.1115602	0.0344164	0.0119793	0.0288801	0.036	0.0813901	0.1462703	0.0276308	0.009	0.0284865	0.0651173	1265.0548	0.0005012	0.1993099	536934.0326	1.024%
T7 CAIRP Class 8	Electricity	0	0	0	0	0	0.036	0.0407214	0.0767214	0	0.009	0.0142525	0.0232525	0	0	0	155947.2735	0.297%
T7 CAIRP Class 8	Natural Gas	0.0128174	0.150013	2.7048351	0	0.001866	0.036	0.0813887	0.1192547	0.0017157	0.009	0.0284861	0.0392018	1005.8868	0.8970724	0.2050566	1964.599462	0.004%
T7 NNOOS Class 8	Diesel	0.010488	1.2289583	0.0334694	0.0114655	0.028495	0.036	0.0813798	0.1458747	0.0272623	0.009	0.0284829	0.0647452	1210.7899	0.0004871	0.1907604	822832.8969	1.569%
T7 NOOS Class 8	Diesel	0.0108186	1.2640251	0.0345017	0.0114595	0.0301652	0.036	0.0813966	0.1475619	0.0288603	0.009	0.0284888	0.0663491	1210.162	0.0005025	0.1906615	298771.4702	0.570%
T7 POLA Class 8	Diesel	0.0100528	1.1136856	0.0353133	0.0129147	0.0256829	0.036	0.0811243	0.1428072	0.0245719	0.009	0.0283935	0.0619654	1363.83	0.0004669	0.214872	370390.5839	0.706%
T7 POLA Class 8	Electricity	0	0	0	0	0	0.036	0.0409502	0.0769502	0	0.009	0.0143326	0.0233326	0	0	0	67026.28868	0.128%
T7 POLA Class 8	Natural Gas	0.0129212	0.152439	2.8264389	0	0.0018764	0.036	0.0814602	0.1193366	0.0017253	0.009	0.0285111	0.0392363	1013.815	0.9043345	0.2066728	14430.52381	0.028%
T7 Public Class 8	Diesel	0.0209312	2.2463025	0.077748	0.0143973	0.022606	0.036	0.0821106	0.1407166	0.0216281	0.009	0.0287387	0.0593668	1520.398	0.0009722	0.2395393	10472.81969	0.020%
T7 Public Class 8	Electricity	0	0	0	0	0	0.036	0.0408948	0.0768948	0	0.009	0.0143132	0.0233132	0	0	0	16704.03518	0.032%
T7 Public Class 8	Natural Gas	0.0128707	0.1678189	3.1023687	0	0.0018392	0.036	0.0801961	0.1180353	0.0016911	0.009	0.0280686	0.0387597	1053.4827	0.9008051	0.2147593	14475.0335	0.028%

T7 Single Concrete/Transit Mix Class 8	Diesel	0.008017	0.6828972	0.027981	0.0134947	0.0154938	0.036	0.0821807	0.1336745	0.0148235	0.009	0.0287632	0.0525868	1425.0875	0.0003724	0.2245231	42350.28164	0.081%
T7 Single Concrete/Transit Mix Class 8	Electricity	0	0	0	0	0	0.036	0.0411597	0.0771597	0	0.009	0.0144059	0.0234059	0	0	0	59615.98572	0.114%
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.01303	0.1510598	2.856646	0	0.0018985	0.036	0.0821772	0.1200756	0.0017456	0.009	0.028762	0.0395076	1042.6429	0.9119527	0.2125496	3306.667596	0.006%
T7 Single Dump Class 8	Diesel	0.0096358	0.9486322	0.0376297	0.0138739	0.0197829	0.036	0.0806446	0.1364275	0.0189271	0.009	0.0282256	0.0561527	1465.1289	0.0004476	0.2308317	41324.69312	0.079%
T7 Single Dump Class 8	Electricity	0	0	0	0	0	0.036	0.0411409	0.0771409	0	0.009	0.0143993	0.0233993	0	0	0	37448.64145	0.071%
T7 Single Dump Class 8	Natural Gas	0.0129731	0.1760257	3.3008699	0	0.0018412	0.036	0.0805498	0.118391	0.0016929	0.009	0.0281924	0.0388853	1068.0827	0.9079668	0.2177356	3275.260473	0.006%
T7 Single Other Class 8	Diesel	0.0091503	0.8741244	0.0341747	0.0137621	0.018845	0.036	0.0808733	0.1357183	0.0180298	0.009	0.0283056	0.0553355	1453.3186	0.000425	0.2289709	66262.50778	0.126%
T7 Single Other Class 8	Electricity	0	0	0	0	0	0.036	0.041148	0.077148	0	0.009	0.0144018	0.0234018	0	0	0	66967.24194	0.128%
T7 Single Other Class 8	Natural Gas	0.0129976	0.1647111	3.1077773	0	0.0018663	0.036	0.0808488	0.1187151	0.001716	0.009	0.0282971	0.0390131	1057.256	0.9096877	0.2155285	5190.971065	0.010%
T7 SWCV Class 8	Diesel	0.0031278	9.9529829	0.0116242	0.0342687	0.0164411	0.036	0.2100001	0.2624412	0.0157299	0.009	0.0735	0.0982299	3618.8855	0.0001453	0.5701569	217.043035	0.000%
T7 SWCV Class 8	Electricity	0	0	0	0	0	0.036	0.105	0.141	0	0.009	0.03675	0.04575	0	0	0	5421.395132	0.010%
T7 SWCV Class 8	Natural Gas	0.0081323	0.2359246	5.220213	0	0.0011567	0.036	0.2100001	0.2471568	0.0010636	0.009	0.0735	0.0835636	909.08352	0.201995	0.1853226	7882.471763	0.015%
T7 Tractor Class 8	Diesel	0.0100225	1.0801226	0.0327488	0.0120458	0.0250681	0.036	0.0808119	0.1418799	0.0239836	0.009	0.0282841	0.0612678	1272.0746	0.0004655	0.2004159	466264.9493	0.889%
T7 Tractor Class 8	Electricity	0	0	0	0	0	0.036	0.040764	0.076764	0	0.009	0.0142674	0.0232674	0	0	0	94616.60086	0.180%
T7 Tractor Class 8	Natural Gas	0.0128267	0.1547766	2.8032271	0	0.0018575	0.036	0.0807058	0.1185634	0.0017079	0.009	0.028247	0.038955	1015.3508	0.8977252	0.2069859	13010.65041	0.025%
T7 Utility Class 8	Diesel	0.0085052	0.7306457	0.0338948	0.0139955	0.014878	0.036	0.0796042	0.1304821	0.0142344	0.009	0.0278615	0.0510958	1477.9717	0.000395	0.232855	3895.662682	0.007%
T7 Utility Class 8	Electricity	0	0	0	0	0	0.036	0.0409078	0.0769078	0	0.009	0.0143177	0.0233177	0	0	0	2992.204817	0.006%
T7IS	Gasoline	0.2989029	2.0067853	24.962921	0.0161711	0.0010252	0.02	0.0824048	0.1034299	0.0009426	0.005	0.0288417	0.0347843	1635.7581	0.0680139	0.0949417	96.98952025	0.000%
T7IS	Electricity	0	0	0	0	0	0.02	0.041385	0.061385	0	0.005	0.0144848	0.0194848	0	0	0	102.565411	0.000%
UBUS	Gasoline	0.001149	0.0182042	0.5480112	0.0052801	0.0011198	0.008	0.091	0.1001199	0.0010296	0.002	0.03185	0.0348797	534.10262	0.0004696	0.0032358	11014.89224	0.021%
UBUS	Electricity	0	0	0	0	0	0.026272	0.055	0.0812718	0	0.0065679	0.01925	0.0258179	0	0	0	61431.63505	0.117%
																TOTAL VMT	52,456,550	100%

lbs/Mile															
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	
4.35E-05	1.42E-03	1.91E-04	1.95E-05	3.11E-05	9.29E-05	3.11E-05	1.50E-04	6.61E-06	3.25E-05	2.98E-05	6.89E-05	2.06E+00	2.02E-06	3.25E-04	
1.53E-05	1.33E-04	3.45E-03	0.00E+00	2.10E-06	9.29E-05	2.10E-06	1.21E-04	6.61E-06	3.25E-05	1.93E-06	4.10E-05	1.51E+00	1.07E-03	3.08E-04	
6.33E-06	4.21E-05	1.08E-03	4.96E-06	1.10E-06	1.54E-05	1.10E-06	3.41E-05	4.41E-06	5.39E-06	1.01E-06	1.08E-05	5.02E-01	2.21E-06	6.99E-06	
1.04E-05	4.61E-05	2.95E-04	3.85E-06	3.06E-06	1.55E-05	3.06E-06	3.62E-05	4.41E-06	5.41E-06	2.92E-06	1.27E-05	4.07E-01	4.82E-07	6.41E-05	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.68E-06	0.00E+00	2.73E-05	4.41E-06	3.39E-06	0.00E+00	7.80E-06	0.00E+00	0.00E+00	0.00E+00	
2.42E-06	5.45E-06	4.03E-04	2.45E-06	4.49E-07	8.66E-06	4.49E-07	2.67E-05	4.41E-06	3.03E-06	4.13E-07	7.85E-06	2.48E-01	7.48E-07	9.47E-07	
7.30E-06	4.78E-05	1.17E-03	5.76E-06	1.23E-06	1.82E-05	1.23E-06	3.71E-05	4.41E-06	6.38E-06	1.13E-06	1.19E-05	5.83E-01	2.47E-06	7.47E-06	
2.54E-05	5.76E-05	2.68E-04	7.09E-06	8.85E-06	1.80E-05	8.85E-06	4.45E-05	4.41E-06	6.31E-06	8.46E-06	1.92E-05	7.48E-01	1.18E-06	1.18E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.69E-06	0.00E+00	2.73E-05	4.41E-06	3.39E-06	0.00E+00	7.80E-06	0.00E+00	0.00E+00	0.00E+00	
2.41E-06	5.43E-06	4.02E-04	2.44E-06	4.30E-07	8.67E-06	4.30E-07	2.67E-05	4.41E-06	3.03E-06	3.96E-07	7.84E-06	2.47E-01	7.45E-07	9.45E-07	
8.80E-06	4.91E-05	1.27E-03	5.94E-06	1.13E-06	1.80E-05	1.13E-06	3.68E-05	4.41E-06	6.30E-06	1.04E-06	1.17E-05	6.01E-01	2.94E-06	7.54E-06	
2.54E-05	5.90E-05	2.65E-04	5.26E-06	8.80E-06	1.80E-05	8.80E-06	4.44E-05	4.41E-06	6.29E-06	8.42E-06	1.91E-05	5.55E-01	1.18E-06	8.74E-05	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.69E-06	0.00E+00	2.73E-05	4.41E-06	3.39E-06	0.00E+00	7.80E-06	0.00E+00	0.00E+00	0.00E+00	
2.41E-06	5.44E-06	4.03E-04	2.45E-06	4.39E-07	8.67E-06	4.39E-07	2.67E-05	4.41E-06	3.03E-06	4.03E-07	7.85E-06	2.48E-01	7.46E-07	9.44E-07	
3.60E-06	4.61E-05	1.29E-03	1.06E-05	2.44E-06	1.72E-04	2.44E-06	1.92E-04	4.41E-06	6.02E-05	2.24E-06	6.68E-05	1.07E+00	1.07E-06	4.19E-06	
9.27E-05	5.82E-04	1.90E-04	9.62E-06	2.68E-05	1.72E-04	2.68E-05	2.25E-04	6.61E-06	6.02E-05	2.56E-05	9.24E-05	1.02E+00	4.30E-06	1.60E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.60E-05	0.00E+00	1.04E-04	4.41E-06	3.01E-05	0.00E+00	3.45E-05	0.00E+00	0.00E+00	0.00E+00	
3.16E-06	5.54E-05	1.31E-03	1.19E-05	2.42E-06	2.01E-04	2.42E-06	2.21E-04	4.41E-06	7.02E-05	2.22E-06	7.68E-05	1.21E+00	9.65E-07	5.54E-06	
1.24E-04	9.72E-04	2.74E-04	1.13E-05	3.61E-05	2.01E-04	3.61E-05	2.63E-04	6.61E-06	7.02E-05	3.45E-05	1.11E-04	1.19E+00	5.77E-06	1.88E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-04	0.00E+00	1.18E-04	4.41E-06	3.51E-05	0.00E+00	3.95E-05	0.00E+00	0.00E+00	0.00E+00	
1.70E-03	1.00E-03	2.10E-02	4.01E-06	4.65E-06	2.65E-05	4.65E-06	3.99E-05	2.20E-06	9.26E-06	4.33E-06	1.58E-05	4.05E-01	2.86E-04	7.61E-05	
1.03E-05	5.86E-05	1.35E-03	7.22E-06	1.18E-06	1.84E-05	1.18E-06	3.72E-05	4.41E-06	6.43E-06	1.08E-06	1.19E-05	7.31E-01	3.27E-06	8.12E-06	
1.05E-05	4.24E-05	3.10E-04	6.94E-06	2.87E-06	1.84E-05	2.87E-06	3.89E-05	4.41E-06	6.45E-06	2.75E-06	1.36E-05	7.32E-01	4.86E-07	1.15E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.70E-06	0.00E+00	2.73E-05	4.41E-06	3.39E-06	0.00E+00	7.80E-06	0.00E+00	0.00E+00	0.00E+00	
2.41E-06	5.45E-06	4.03E-04	2.45E-06	4.49E-07	8.68E-06	4.49E-07	2.68E-05	4.41E-06	3.04E-06	4.13E-07	7.86E-06	2.48E-01	7.43E-07	9.36E-07	
1.77E-05	3.88E-04	3.09E-04	3.84E-05	2.21E-06	9.31E-05	2.21E-06	1.22E-04	6.61E-06	3.26E-05	2.03E-06	4.12E-05	3.88E+00	6.51E-06	3.71E-05	
7.62E-05	4.28E-03	2.83E-04	2.06E-05	9.23E-05	9.29E-05	9.23E-05	2.20E-04	8.82E-06	3.25E-05	8.83E-05	1.30E-04	2.18E+00	3.54E-06	3.43E-04	
2.00E-05	1.79E-03	9.30E-05	3.10E-05	4.04E-05	1.88E-04	4.04E-05	2.55E-04	6.61E-06	6.59E-05	3.86E-05	1.11E-04	3.27E+00	9.31E-07	5.16E-04	
3.17E-05	4.91E-04	7.54E-04	3.09E-05	2.02E-06	9.29E-05	2.02E-06	1.21E-04	6.61E-06	3.25E-05	1.86E-06	4.10E-05	3.13E+00	7.20E-06	3.05E-05	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-05	0.00E+00	7.29E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00	
3.15E-05	5.37E-03	3.91E-04	3.63E-05	8.58E-06	0.00E+00	8.58E-06	8.58E-06	0.00E+00	0.00E+00	8.21E-06	8.21E-06	3.84E+00	1.46E-06	6.05E-04	
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	
2.46E-05	3.71E-04	4.71E-04	1.81E-05	3.51E-06	1.03E-04	3.51E-06	1.24E-04	4.41E-06	3.61E-05	3.23E-06	4.38E-05	1.83E+00	5.57E-06	3.19E-05	
2.88E-05	1.16E-03	1.63E-04	2.35E-05	8.48E-06	1.03E-04	8.48E-06	1.38E-04	6.61E-06	3.61E-05	8.12E-06	5.09E-05	2.48E+00	1.34E-06	3.91E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.16E-05	0.00E+00	7.62E-05	6.15E-06	1.81E-05	0.00E+00	2.42E-05	0.00E+00	0.00E+00	0.00E+00	
1.08E-04	7.35E-04	2.23E-02	0.00E+00	9.88E-06	1.03E-04	9.88E-06	1.40E-04	6.61E-06	3.61E-05	9.09E-06	5.18E-05	3.26E+00	7.59E-03	6.65E-04	
1.05E-05	3.65E-04	6.14E-05	2.06E-05	1.02E-05	9.28E-05	1.02E-05	1.29E-04	6.61E-06	3.25E-05	9.76E-06	4.88E-05	2.18E+00	4.86E-07	3.43E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-05	0.00E+00	7.28E-05	6.61E-06	1.62E-05	0.00E+00	2.28E-05	0.00E+00	0.00E+00	0.00E+00	
1.05E-05	3.68E-04	6.14E-05	2.06E-05	1.02E-05	9.28E-05	1.02E-05	1.29E-04	6.61E-06	3.25E-05	9.78E-06	4.89E-05	2.18E+00	4.87E-07	3.43E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-05	0.00E+00	7.28E-05	6.61E-06	1.62E-05	0.00E+00	2.28E-05	0.00E+00	0.00E+00	0.00E+00	
1.04E-05	3.68E-04	6.12E-05	2.06E-05	1.02E-05	9.28E-05	1.02E-05	1.29E-04	6.61E-06	3.25E-05	9.80E-06	4.89E-05	2.18E+00	4.85E-07	3.43E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-05	0.00E+00	7.28E-05	6.61E-06	1.62E-05	0.00E+00	2.28E-05	0.00E+00	0.00E+00	0.00E+00	
1.12E-05	4.01E-04	6.60E-05	1.82E-05	1.09E-05	9.28E-05	1.09E-05	1.30E-04	6.61E-06	3.25E-05	1.04E-05	4.95E-05	1.92E+00	5.22E-07	3.03E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-05	0.00E+00	7.28E-05	6.61E-06	1.62E-05	0.00E+00	2.28E-05	0.00E+00	0.00E+00	0.00E+00	
1.54E-05	9.50E-05	2.89E-03	0.00E+00	2.28E-06	9.28E-05	2.28E-06	1.22E-04	6.61E-06	3.25E-05	2.10E-06	4.12E-05	1.55E+00	1.07E-03	3.17E-04	
1.07E-05	4.20E-04	6.92E-05	2.05E-05	9.76E-06	9.32E-05	9.76E-06	1.29E-04	6.61E-06	3.26E-05	9.33E-06	4.86E-05	2.17E+00	4.96E-07	3.42E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-05	0.00E+00	7.31E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00	
1.60E-05	9.86E-05	3.25E-03	0.00E+00	2.36E-06	9.32E-05	2.36E-06	1.22E-04	6.61E-06	3.26E-05	2.17E-06	4.14E-05	1.64E+00	1.12E-03	3.33E-04	
1.07E-05	4.13E-04	6.91E-05	2.06E-05	9.72E-06	9.32E-05	9.72E-06	1.29E-04	6.61E-06	3.26E-05	9.30E-06	4.85E-05	2.17E+00	4.96E-07	3.42E-04	
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-05	0.00E+00	7.31E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00	
1.60E-05	9.81E-05	3.24E-03	0.00E+00	2.37E-06	9.32E-05	2.37E-06	1.22E-04	6.61E-06	3.26E-05	2.18E-06	4.14E-05	1.63E+00	1.12E-03	3.33E-04	
1.07E-05	4.29E-04	6.94E-05	2.05E-05	9.80E-06	9.32E-05	9.80E-06	1.29E-04	6.61E-06	3.26E-05	9.38E-06	4.86E-05	2.17E+00	4.97E-07	3.42E-04	

1.00E-06

0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-05	0.00E+00	7.31E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.60E-05	9.87E-05	3.25E-03	0.00E+00	2.36E-06	9.32E-05	2.36E-06	1.22E-04	6.61E-06	3.26E-05	2.17E-06	4.14E-05	1.63E+00	1.12E-03	3.33E-04
1.49E-05	8.71E-04	8.81E-05	2.08E-05	1.34E-05	9.32E-05	1.34E-05	1.33E-04	6.61E-06	3.26E-05	1.28E-05	5.20E-05	2.19E+00	6.93E-07	3.45E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-05	0.00E+00	7.31E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.49E-05	1.60E-04	3.76E-03	0.00E+00	1.98E-06	9.32E-05	1.98E-06	1.22E-04	6.61E-06	3.26E-05	1.82E-06	4.11E-05	1.68E+00	1.04E-03	3.42E-04
1.07E-05	4.09E-04	6.82E-05	2.05E-05	9.84E-06	9.31E-05	9.84E-06	1.29E-04	6.61E-06	3.26E-05	9.41E-06	4.86E-05	2.17E+00	4.96E-07	3.42E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-05	0.00E+00	7.30E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.59E-05	9.75E-05	3.19E-03	0.00E+00	2.36E-06	9.31E-05	2.36E-06	1.22E-04	6.61E-06	3.26E-05	2.17E-06	4.14E-05	1.63E+00	1.11E-03	3.32E-04
1.07E-05	4.04E-04	6.81E-05	2.05E-05	9.82E-06	9.31E-05	9.82E-06	1.29E-04	6.61E-06	3.26E-05	9.39E-06	4.86E-05	2.17E+00	4.97E-07	3.42E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-05	0.00E+00	7.30E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.59E-05	9.70E-05	3.18E-03	0.00E+00	2.36E-06	9.31E-05	2.36E-06	1.22E-04	6.61E-06	3.26E-05	2.17E-06	4.14E-05	1.63E+00	1.11E-03	3.32E-04
1.07E-05	4.14E-04	6.83E-05	2.05E-05	9.88E-06	9.31E-05	9.88E-06	1.29E-04	6.61E-06	3.26E-05	9.45E-06	4.87E-05	2.17E+00	4.97E-07	3.41E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-05	0.00E+00	7.30E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.59E-05	9.74E-05	3.19E-03	0.00E+00	2.36E-06	9.31E-05	2.36E-06	1.22E-04	6.61E-06	3.26E-05	2.17E-06	4.14E-05	1.63E+00	1.11E-03	3.32E-04
1.36E-05	7.06E-04	8.12E-05	2.06E-05	1.23E-05	9.31E-05	1.23E-05	1.32E-04	6.61E-06	3.26E-05	1.18E-05	5.10E-05	2.18E+00	6.31E-07	3.44E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-05	0.00E+00	7.30E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.52E-05	1.40E-04	3.55E-03	0.00E+00	2.09E-06	9.31E-05	2.09E-06	1.22E-04	6.61E-06	3.26E-05	1.92E-06	4.11E-05	1.66E+00	1.06E-03	3.38E-04
1.06E-05	4.23E-04	6.75E-05	2.05E-05	9.85E-06	9.31E-05	9.85E-06	1.29E-04	6.61E-06	3.26E-05	9.43E-06	4.86E-05	2.16E+00	4.93E-07	3.41E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-05	0.00E+00	7.30E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.59E-05	9.73E-05	3.19E-03	0.00E+00	2.36E-06	9.31E-05	2.36E-06	1.22E-04	6.61E-06	3.26E-05	2.17E-06	4.14E-05	1.63E+00	1.11E-03	3.32E-04
1.31E-05	6.92E-04	7.97E-05	1.87E-05	1.21E-05	9.31E-05	1.21E-05	1.32E-04	6.61E-06	3.26E-05	1.16E-05	5.08E-05	1.97E+00	6.09E-07	3.11E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.66E-05	0.00E+00	7.30E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.52E-05	1.37E-04	3.53E-03	0.00E+00	2.11E-06	9.31E-05	2.11E-06	1.22E-04	6.61E-06	3.26E-05	1.94E-06	4.12E-05	1.62E+00	1.07E-03	3.31E-04
1.02E-05	4.57E-04	6.00E-05	1.93E-05	1.05E-05	9.28E-05	1.05E-05	1.30E-04	6.61E-06	3.25E-05	1.01E-05	4.92E-05	2.04E+00	4.75E-07	3.22E-04
1.03E-05	4.61E-04	6.02E-05	1.94E-05	1.06E-05	9.28E-05	1.06E-05	1.30E-04	6.61E-06	3.25E-05	1.01E-05	4.92E-05	2.04E+00	4.77E-07	3.22E-04
1.02E-05	4.52E-04	5.98E-05	1.93E-05	1.05E-05	9.28E-05	1.05E-05	1.30E-04	6.61E-06	3.25E-05	1.00E-05	4.91E-05	2.04E+00	4.73E-07	3.21E-04
1.10E-05	4.78E-04	6.45E-05	1.74E-05	1.11E-05	9.28E-05	1.11E-05	1.30E-04	6.61E-06	3.25E-05	1.06E-05	4.97E-05	1.84E+00	5.10E-07	2.90E-04
1.30E-05	8.18E-04	6.92E-05	2.08E-05	1.19E-05	9.29E-05	1.19E-05	1.31E-04	6.61E-06	3.25E-05	1.14E-05	5.05E-05	2.20E+00	6.03E-07	3.47E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-05	0.00E+00	7.29E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.55E-05	9.70E-05	3.02E-03	0.00E+00	2.30E-06	9.29E-05	2.30E-06	1.22E-04	6.61E-06	3.25E-05	2.12E-06	4.13E-05	1.61E+00	1.09E-03	3.29E-04
1.42E-05	8.39E-04	7.25E-05	2.10E-05	1.24E-05	9.29E-05	1.24E-05	1.32E-04	6.61E-06	3.25E-05	1.19E-05	5.10E-05	2.22E+00	6.60E-07	3.49E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-05	0.00E+00	7.29E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.52E-05	1.22E-04	3.25E-03	0.00E+00	2.16E-06	9.29E-05	2.16E-06	1.22E-04	6.61E-06	3.25E-05	1.99E-06	4.11E-05	1.63E+00	1.06E-03	3.32E-04
1.21E-05	6.35E-04	6.65E-05	2.08E-05	1.14E-05	9.29E-05	1.14E-05	1.31E-04	6.61E-06	3.25E-05	1.09E-05	5.00E-05	2.20E+00	5.62E-07	3.47E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-05	0.00E+00	7.29E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.55E-05	1.02E-04	3.06E-03	0.00E+00	2.28E-06	9.29E-05	2.28E-06	1.22E-04	6.61E-06	3.25E-05	2.10E-06	4.12E-05	1.62E+00	1.08E-03	3.30E-04
1.13E-05	5.65E-04	6.28E-05	2.06E-05	1.06E-05	9.29E-05	1.06E-05	1.30E-04	6.61E-06	3.25E-05	1.01E-05	4.92E-05	2.18E+00	5.23E-07	3.43E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-05	0.00E+00	7.29E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.55E-05	9.97E-05	3.04E-03	0.00E+00	2.29E-06	9.29E-05	2.29E-06	1.22E-04	6.61E-06	3.25E-05	2.10E-06	4.12E-05	1.62E+00	1.09E-03	3.30E-04
8.32E-06	2.72E-04	5.06E-05	2.04E-05	8.57E-06	9.29E-05	8.57E-06	1.28E-04	6.61E-06	3.25E-05	8.20E-06	4.73E-05	2.16E+00	3.86E-07	3.40E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-05	0.00E+00	7.29E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.56E-05	9.38E-05	2.99E-03	0.00E+00	2.32E-06	9.29E-05	2.32E-06	1.22E-04	6.61E-06	3.25E-05	2.14E-06	4.13E-05	1.61E+00	1.09E-03	3.28E-04
8.32E-06	2.66E-04	5.06E-05	2.04E-05	8.51E-06	9.29E-05	8.51E-06	1.28E-04	6.61E-06	3.25E-05	8.14E-06	4.73E-05	2.16E+00	3.86E-07	3.40E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-05	0.00E+00	7.29E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.56E-05	9.38E-05	2.99E-03	0.00E+00	2.32E-06	9.29E-05	2.32E-06	1.22E-04	6.61E-06	3.25E-05	2.14E-06	4.13E-05	1.61E+00	1.09E-03	3.28E-04
8.23E-06	2.60E-04	5.01E-05	2.05E-05	8.46E-06	9.29E-05	8.46E-06	1.28E-04	6.61E-06	3.25E-05	8.10E-06	4.72E-05	2.16E+00	3.82E-07	3.40E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-05	0.00E+00	7.29E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
1.56E-05	9.38E-05	2.99E-03	0.00E+00	2.32E-06	9.29E-05	2.32E-06	1.22E-04	6.61E-06	3.25E-05	2.14E-06	4.13E-05	1.61E+00	1.09E-03	3.28E-04
1.72E-05	1.41E-04	3.55E-04	3.04E-05	2.28E-06	9.31E-05	2.28E-06	1.22E-04	6.61E-06	3.26E-05	2.09E-06	4.13E-05	3.08E+00	4.56E-06	1.37E-05
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-05	0.00E+00	7.30E-05	6.61E-06	1.63E-05	0.00E+00	2.29E-05	0.00E+00	0.00E+00	0.00E+00
2.38E-05	2.45E-03	7.59E-05	2.64E-05	6.37E-05	1.79E-04	6.37E-05	3.22E-04	1.98E-05	6.28E-05	6.09E-05	1.44E-04	2.79E+00	1.10E-06	4.39E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.98E-05	0.00E+00	1.69E-04	1.98E-05	3.14E-05	0.00E+00	5.13E-05	0.00E+00	0.00E+00	0.00E+00
2.83E-05	3.31E-04	5.96E-03	0.00E+00	4.11E-06	1.79E-04	4.11E-06	2.63E-04	1.98E-05	6.28E-05	3.78E-06	8.64E-05	2.22E+00	1.98E-03	4.52E-04
2.31E-05	2.71E-03	7.38E-05	2.53E-05	6.28E-05	1.79E-04	6.28E-05	3.22E-04	1.98E-05	6.28E-05	6.01E-05	1.43E-04	2.67E+00	1.07E-06	4.21E-04
2.39E-05	2.79E-03	7.61E-05	2.53E-05	6.65E-05	1.79E-04	6.65E-05	3.25E-04	1.98E-05	6.28E-05	6.36E-05	1.46E-04	2.67E+00	1.11E-06	4.20E-04
2.22E-05	2.46E-03	7.79E-05	2.85E-05	5.66E-05	1.79E-04	5.66E-05	3.15E-04	1.98E-05	6.26E-05	5.42E-05	1.37E-04	3.01E+00	1.03E-06	4.74E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.03E-05	0.00E+00	1.70E-04	1.98E-05	3.16E-05	0.00E+00	5.14E-05	0.00E+00	0.00E+00	0.00E+00
2.85E-05	3.36E-04	6.23E-03	0.00E+00	4.14E-06	1.80E-04	4.14E-06	2.63E-04	1.98E-05	6.29E-05	3.80E-06	8.65E-05	2.24E+00	1.99E-03	4.56E-04
4.61E-05	4.95E-03	1.71E-04	3.17E-05	4.98E-05	1.81E-04	4.98E-05	3.10E-04	1.98E-05	6.34E-05	4.77E-05	1.31E-04	3.35E+00	2.14E-06	5.28E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.02E-05	0.00E+00	1.70E-04	1.98E-05	3.16E-05	0.00E+00	5.14E-05	0.00E+00	0.00E+00	0.00E+00
2.84E-05	3.70E-04	6.84E-03	0.00E+00	4.05E-06	1.77E-04	4.05E-06	2.60E-04	1.98E-05	6.19E-05	3.73E-06	8.54E-05	2.32E+00	1.99E-03	4.73E-04

1.77E-05	1.51E-03	6.17E-05	2.98E-05	3.42E-05	1.81E-04	3.42E-05	2.95E-04	1.98E-05	6.34E-05	3.27E-05	1.16E-04	3.14E+00	8.21E-07	4.95E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.07E-05	0.00E+00	1.70E-04	1.98E-05	3.18E-05	0.00E+00	5.16E-05	0.00E+00	0.00E+00	0.00E+00
2.87E-05	3.33E-04	6.30E-03	0.00E+00	4.19E-06	1.81E-04	4.19E-06	2.65E-04	1.98E-05	6.34E-05	3.85E-06	8.71E-05	2.30E+00	2.01E-03	4.69E-04
2.12E-05	2.09E-03	8.30E-05	3.06E-05	4.36E-05	1.78E-04	4.36E-05	3.01E-04	1.98E-05	6.22E-05	4.17E-05	1.24E-04	3.23E+00	9.87E-07	5.09E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.07E-05	0.00E+00	1.70E-04	1.98E-05	3.17E-05	0.00E+00	5.16E-05	0.00E+00	0.00E+00	0.00E+00
2.86E-05	3.88E-04	7.28E-03	0.00E+00	4.06E-06	1.78E-04	4.06E-06	2.61E-04	1.98E-05	6.22E-05	3.73E-06	8.57E-05	2.35E+00	2.00E-03	4.80E-04
2.02E-05	1.93E-03	7.53E-05	3.03E-05	4.15E-05	1.78E-04	4.15E-05	2.99E-04	1.98E-05	6.24E-05	3.97E-05	1.22E-04	3.20E+00	9.37E-07	5.05E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.07E-05	0.00E+00	1.70E-04	1.98E-05	3.18E-05	0.00E+00	5.16E-05	0.00E+00	0.00E+00	0.00E+00
2.87E-05	3.63E-04	6.85E-03	0.00E+00	4.11E-06	1.78E-04	4.11E-06	2.62E-04	1.98E-05	6.24E-05	3.78E-06	8.60E-05	2.33E+00	2.01E-03	4.75E-04
6.90E-06	2.19E-02	2.56E-05	7.55E-05	3.62E-05	4.63E-04	3.62E-05	5.79E-04	1.98E-05	1.62E-04	3.47E-05	2.17E-04	7.98E+00	3.20E-07	1.26E-03
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.31E-04	0.00E+00	3.11E-04	1.98E-05	8.10E-05	0.00E+00	1.01E-04	0.00E+00	0.00E+00	0.00E+00
1.79E-05	5.20E-04	1.15E-02	0.00E+00	2.55E-06	4.63E-04	2.55E-06	5.45E-04	1.98E-05	1.62E-04	2.34E-06	1.84E-04	2.00E+00	4.45E-04	4.09E-04
2.21E-05	2.38E-03	7.22E-05	2.66E-05	5.53E-05	1.78E-04	5.53E-05	3.13E-04	1.98E-05	6.24E-05	5.29E-05	1.35E-04	2.80E+00	1.03E-06	4.42E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.99E-05	0.00E+00	1.69E-04	1.98E-05	3.15E-05	0.00E+00	5.13E-05	0.00E+00	0.00E+00	0.00E+00
2.83E-05	3.41E-04	6.18E-03	0.00E+00	4.10E-06	1.78E-04	4.10E-06	2.61E-04	1.98E-05	6.23E-05	3.77E-06	8.59E-05	2.24E+00	1.98E-03	4.56E-04
1.88E-05	1.61E-03	7.47E-05	3.09E-05	3.28E-05	1.75E-04	3.28E-05	2.88E-04	1.98E-05	6.14E-05	3.14E-05	1.13E-04	3.26E+00	8.71E-07	5.13E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.02E-05	0.00E+00	1.70E-04	1.98E-05	3.16E-05	0.00E+00	5.14E-05	0.00E+00	0.00E+00	0.00E+00
6.59E-04	4.42E-03	5.50E-02	3.57E-05	2.26E-06	1.82E-04	2.26E-06	2.28E-04	1.10E-05	6.36E-05	2.08E-06	7.67E-05	3.61E+00	1.50E-04	2.09E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.12E-05	0.00E+00	1.35E-04	1.10E-05	3.19E-05	0.00E+00	4.30E-05	0.00E+00	0.00E+00	0.00E+00
2.53E-06	4.01E-05	1.21E-03	1.16E-05	2.47E-06	2.01E-04	2.47E-06	2.21E-04	4.41E-06	7.02E-05	2.27E-06	7.69E-05	1.18E+00	1.04E-06	7.13E-06
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-04	0.00E+00	1.79E-04	1.45E-05	4.24E-05	0.00E+00	5.69E-05	0.00E+00	0.00E+00	0.00E+00

MTens/Mile														
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
1.97E-08	6.45E-07	8.67E-08	8.85E-09	1.20E-08	4.21E-08	1.41E-08	6.83E-08	3.00E-09	1.47E-08	1.35E-08	3.13E-08	9.34E-04	9.17E-10	1.47E-07
6.94E-09	6.02E-08	1.56E-06	0.00E+00	1.20E-08	4.21E-08	9.51E-10	5.51E-08	3.00E-09	1.47E-08	8.74E-10	1.86E-08	6.85E-04	4.85E-07	1.40E-07
2.87E-09	1.91E-08	4.91E-07	2.25E-09	8.00E-09	6.98E-09	4.97E-10	1.55E-08	2.00E-09	2.44E-09	4.57E-10	4.90E-09	2.28E-04	1.00E-09	3.17E-09
4.71E-09	2.09E-08	1.34E-07	1.75E-09	8.00E-09	7.01E-09	1.39E-09	1.64E-08	2.00E-09	2.46E-09	1.33E-09	5.78E-09	1.85E-04	2.19E-10	2.91E-08
0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-09	4.39E-09	0.00E+00	1.24E-08	2.00E-09	1.54E-09	0.00E+00	3.54E-09	0.00E+00	0.00E+00	0.00E+00
1.10E-09	2.47E-09	1.83E-07	1.11E-09	8.00E-09	3.93E-09	2.04E-10	1.21E-08	2.00E-09	1.38E-09	1.87E-10	3.56E-09	1.13E-04	3.39E-10	4.30E-10
3.31E-09	2.17E-08	5.32E-07	2.61E-09	8.00E-09	8.27E-09	5.58E-10	1.68E-08	2.00E-09	2.89E-09	5.13E-10	5.41E-09	2.64E-04	1.12E-09	3.39E-09
1.15E-08	2.61E-08	1.21E-07	3.22E-09	8.00E-09	8.18E-09	4.01E-09	2.02E-08	2.00E-09	2.86E-09	3.84E-09	8.70E-09	3.39E-04	5.35E-10	5.35E-08
0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-09	4.39E-09	0.00E+00	1.24E-08	2.00E-09	1.54E-09	0.00E+00	3.54E-09	0.00E+00	0.00E+00	0.00E+00
1.09E-09	2.46E-09	1.82E-07	1.11E-09	8.00E-09	3.93E-09	1.95E-10	1.21E-08	2.00E-09	1.38E-09	1.79E-10	3.56E-09	1.12E-04	3.38E-10	4.29E-10
3.99E-09	2.23E-08	5.75E-07	2.70E-09	8.00E-09	8.16E-09	5.12E-10	1.67E-08	2.00E-09	2.86E-09	4.71E-10	5.33E-09	2.73E-04	1.33E-09	3.42E-09
1.15E-08	2.67E-08	1.20E-07	2.38E-09	8.00E-09	8.15E-09	3.99E-09	2.01E-08	2.00E-09	2.85E-09	3.82E-09	8.67E-09	2.52E-04	5.35E-10	3.96E-08
0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-09	4.39E-09	0.00E+00	1.24E-08	2.00E-09	1.54E-09	0.00E+00	3.54E-09	0.00E+00	0.00E+00	0.00E+00
1.09E-09	2.47E-09	1.83E-07	1.11E-09	8.00E-09	3.93E-09	1.99E-10	1.21E-08	2.00E-09	1.38E-09	1.83E-10	3.56E-09	1.12E-04	3.38E-10	4.28E-10
1.63E-09	2.09E-08	5.84E-07	4.82E-09	8.00E-09	7.80E-08	1.11E-09	8.71E-08	2.00E-09	2.73E-08	1.02E-09	3.03E-08	4.88E-04	4.86E-10	1.90E-09
4.20E-08	2.64E-07	8.64E-08	4.37E-09	1.20E-08	7.80E-08	1.22E-08	1.02E-07	3.00E-09	2.73E-08	1.16E-08	4.19E-08	4.61E-04	1.95E-09	7.26E-08
0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-09	3.90E-08	0.00E+00	4.70E-08	2.00E-09	1.37E-08	0.00E+00	1.57E-08	0.00E+00	0.00E+00	0.00E+00
1.43E-09	2.51E-08	5.95E-07	5.42E-09	8.00E-09	9.10E-08	1.10E-09	1.00E-07	2.00E-09	3.19E-08	1.01E-09	3.49E-08	5.48E-04	4.38E-10	2.51E-09
5.64E-08	4.41E-07	1.24E-07	5.12E-09	1.20E-08	9.10E-08	1.64E-08	1.19E-07	3.00E-09	3.19E-08	1.56E-08	5.05E-08	5.40E-04	2.62E-09	8.51E-08
0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-09	4.55E-08	0.00E+00	5.35E-08	2.00E-09	1.59E-08	0.00E+00	1.79E-08	0.00E+00	0.00E+00	0.00E+00
7.70E-07	4.54E-07	9.51E-06	1.82E-09	4.00E-09	1.20E-08	2.11E-09	1.81E-08	1.00E-09	4.20E-09	1.96E-09	7.16E-09	1.84E-04	1.30E-07	3.45E-08
4.66E-09	2.66E-08	6.14E-07	3.28E-09	8.00E-09	8.33E-09	5.33E-10	1.69E-08	2.00E-09	2.92E-09	4.90E-10	5.41E-09	3.31E-04	1.48E-09	3.68E-09
4.75E-09	1.92E-08	1.40E-07	3.15E-09	8.00E-09	8.36E-09	1.30E-09	1.77E-08	2.00E-09	2.93E-09	1.25E-09	6.17E-09	3.32E-04	2.21E-10	5.23E-08
0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-09	4.40E-09	0.00E+00	1.24E-08	2.00E-09	1.54E-09	0.00E+00	3.54E-09	0.00E+00	0.00E+00	0.00E+00
1.09E-09	2.47E-09	1.83E-07	1.11E-09	8.00E-09	3.94E-09	2.04E-10	1.21E-08	2.00E-09	1.38E-09	1.87E-10	3.57E-09	1.12E-04	3.37E-10	4.25E-10
8.04E-09	1.76E-07	1.40E-07	1.74E-08	1.20E-08	4.22E-08	1.00E-09	5.52E-08	3.00E-09	1.48E-08	9.21E-10	1.87E-08	1.76E-03	2.95E-09	1.68E-08
3.46E-08	1.94E-06	1.28E-07	9.35E-09	1.60E-08	4.21E-08	4.19E-08	1.00E-07	4.00E-09	1.48E-08	4.00E-08	5.88E-08	9.87E-04	1.60E-09	1.56E-07
9.09E-09	8.14E-07	4.22E-08	1.41E-08	1.20E-08	8.53E-08	1.83E-08	1.16E-07	3.00E-09	2.99E-08	1.75E-08	5.04E-08	1.49E-03	4.22E-10	2.34E-07
1.44E-08	2.23E-07	3.42E-07	1.40E-08	1.20E-08	4.21E-08	9.17E-10	5.50E-08	3.00E-09	1.47E-08	8.43E-10	1.86E-08	1.42E-03	3.26E-09	1.38E-08
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.37E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
1.43E-08	2.43E-06	1.77E-07	1.65E-08	0.00E+00	0.00E+00	3.89E-09	3.89E-09	0.00E+00	0.00E+00	3.72E-09	3.72E-09	1.74E-03	6.63E-10	2.74E-07
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
1.11E-08	1.68E-07	2.14E-07	8.22E-09	8.00E-09	4.68E-08	1.59E-09	5.64E-08	2.00E-09	1.64E-08	1.46E-09	1.99E-08	8.32E-04	2.53E-09	1.45E-08
1.31E-08	5.26E-07	7.39E-08	1.07E-08	1.20E-08	4.68E-08	3.85E-09	6.27E-08	3.00E-09	1.64E-08	3.68E-09	2.31E-08	1.13E-03	6.08E-10	1.77E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-08	2.34E-08	0.00E+00	3.46E-08	2.79E-09	8.20E-09	0.00E+00	1.10E-08	0.00E+00	0.00E+00	0.00E+00
4.92E-08	3.34E-07	1.01E-05	0.00E+00	1.20E-08	4.68E-08	4.48E-09	6.33E-08	3.00E-09	1.64E-08	4.12E-09	2.35E-08	1.48E-03	3.44E-06	3.01E-07
4.74E-09	1.66E-07	2.78E-08	9.35E-09	1.20E-08	4.21E-08	4.63E-09	5.87E-08	3.00E-09	1.47E-08	4.43E-09	2.22E-08	9.88E-04	2.20E-10	1.56E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.10E-08	0.00E+00	3.30E-08	3.00E-09	7.36E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
4.75E-09	1.67E-07	2.79E-08	9.36E-09	1.20E-08	4.21E-08	4.64E-09	5.87E-08	3.00E-09	1.47E-08	4.44E-09	2.22E-08	9.88E-04	2.21E-10	1.56E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.10E-08	0.00E+00	3.30E-08	3.00E-09	7.36E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
4.73E-09	1.67E-07	2.78E-08	9.35E-09	1.20E-08	4.21E-08	4.65E-09	5.87E-08	3.00E-09	1.47E-08	4.45E-09	2.22E-08	9.87E-04	2.20E-10	1.55E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.10E-08	0.00E+00	3.30E-08	3.00E-09	7.36E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
5.10E-09	1.82E-07	2.99E-08	8.26E-09	1.20E-08	4.21E-08	4.92E-09	5.90E-08	3.00E-09	1.47E-08	4.71E-09	2.24E-08	8.72E-04	2.37E-10	1.37E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.10E-08	0.00E+00	3.30E-08	3.00E-09	7.36E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
6.97E-09	4.31E-08	1.31E-06	0.00E+00	1.20E-08	4.21E-08	1.03E-09	5.51E-08	3.00E-09	1.47E-08	9.50E-10	1.87E-08	7.05E-04	4.88E-07	1.44E-07
4.85E-09	1.91E-07	3.14E-08	9.32E-09	1.20E-08	4.23E-08	4.42E-09	5.87E-08	3.00E-09	1.48E-08	4.23E-09	2.20E-08	9.84E-04	2.25E-10	1.55E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.40E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.24E-09	4.47E-08	1.47E-06	0.00E+00	1.20E-08	4.23E-08	1.07E-09	5.53E-08	3.00E-09	1.48E-08	9.86E-10	1.88E-08	7.42E-04	5.07E-07	1.51E-07
4.84E-09	1.87E-07	3.13E-08	9.33E-09	1.20E-08	4.23E-08	4.41E-09	5.87E-08	3.00E-09	1.48E-08	4.22E-09	2.20E-08	9.85E-04	2.25E-10	1.55E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.40E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.24E-09	4.45E-08	1.47E-06	0.00E+00	1.20E-08	4.23E-08	1.07E-09	5.53E-08	3.00E-09	1.48E-08	9.87E-10	1.88E-08	7.41E-04	5.07E-07	1.51E-07
4.85E-09	1.94E-07	3.15E-08	9.31E-09	1.20E-08	4.23E-08	4.45E-09	5.87E-08	3.00E-09	1.48E-08	4.25E-09	2.20E-08	9.83E-04	2.25E-10	1.55E-07

0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.40E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.24E-09	4.48E-08	1.47E-06	0.00E+00	1.20E-08	4.23E-08	1.07E-09	5.53E-08	3.00E-09	1.48E-08	9.85E-10	1.88E-08	7.42E-04	5.07E-07	1.51E-07
6.76E-09	3.95E-07	3.99E-08	9.42E-09	1.20E-08	4.23E-08	6.06E-09	6.03E-08	3.00E-09	1.48E-08	5.80E-09	2.36E-08	9.94E-04	3.14E-10	1.57E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.40E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
6.77E-09	7.27E-08	1.71E-06	0.00E+00	1.20E-08	4.23E-08	8.98E-10	5.52E-08	3.00E-09	1.48E-08	8.25E-10	1.86E-08	7.60E-04	4.74E-07	1.55E-07
4.84E-09	1.86E-07	3.09E-08	9.31E-09	1.20E-08	4.23E-08	4.46E-09	5.87E-08	3.00E-09	1.48E-08	4.27E-09	2.21E-08	9.83E-04	2.25E-10	1.55E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.39E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.21E-09	4.42E-08	1.45E-06	0.00E+00	1.20E-08	4.23E-08	1.07E-09	5.53E-08	3.00E-09	1.48E-08	9.83E-10	1.88E-08	7.39E-04	5.04E-07	1.51E-07
4.85E-09	1.83E-07	3.09E-08	9.32E-09	1.20E-08	4.23E-08	4.45E-09	5.87E-08	3.00E-09	1.48E-08	4.26E-09	2.20E-08	9.84E-04	2.25E-10	1.55E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.39E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.21E-09	4.40E-08	1.44E-06	0.00E+00	1.20E-08	4.23E-08	1.07E-09	5.53E-08	3.00E-09	1.48E-08	9.84E-10	1.88E-08	7.38E-04	5.05E-07	1.50E-07
4.85E-09	1.88E-07	3.10E-08	9.31E-09	1.20E-08	4.23E-08	4.48E-09	5.87E-08	3.00E-09	1.48E-08	4.29E-09	2.21E-08	9.83E-04	2.25E-10	1.55E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.39E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.21E-09	4.42E-08	1.45E-06	0.00E+00	1.20E-08	4.23E-08	1.07E-09	5.53E-08	3.00E-09	1.48E-08	9.83E-10	1.88E-08	7.39E-04	5.04E-07	1.51E-07
6.16E-09	3.20E-07	3.68E-08	9.37E-09	1.20E-08	4.23E-08	5.60E-09	5.99E-08	3.00E-09	1.48E-08	5.36E-09	2.31E-08	9.89E-04	2.86E-10	1.56E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.39E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
6.88E-09	6.34E-08	1.61E-06	0.00E+00	1.20E-08	4.23E-08	9.49E-10	5.52E-08	3.00E-09	1.48E-08	8.73E-10	1.87E-08	7.53E-04	4.82E-07	1.54E-07
4.82E-09	1.92E-07	3.06E-08	9.29E-09	1.20E-08	4.23E-08	4.47E-09	5.87E-08	3.00E-09	1.48E-08	4.28E-09	2.21E-08	9.81E-04	2.24E-10	1.55E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.39E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.21E-09	4.42E-08	1.45E-06	0.00E+00	1.20E-08	4.23E-08	1.07E-09	5.53E-08	3.00E-09	1.48E-08	9.83E-10	1.88E-08	7.39E-04	5.04E-07	1.51E-07
5.95E-09	3.14E-07	3.62E-08	8.48E-09	1.20E-08	4.23E-08	5.49E-09	5.97E-08	3.00E-09	1.48E-08	5.25E-09	2.30E-08	8.96E-04	2.76E-10	1.41E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.39E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
6.90E-09	6.22E-08	1.60E-06	0.00E+00	1.20E-08	4.23E-08	9.57E-10	5.52E-08	3.00E-09	1.48E-08	8.80E-10	1.87E-08	7.36E-04	4.83E-07	1.50E-07
4.64E-09	2.07E-07	2.72E-08	8.78E-09	1.20E-08	4.21E-08	4.78E-09	5.89E-08	3.00E-09	1.47E-08	4.57E-09	2.23E-08	9.27E-04	2.16E-10	1.46E-07
4.66E-09	2.09E-07	2.73E-08	8.78E-09	1.20E-08	4.21E-08	4.80E-09	5.89E-08	3.00E-09	1.47E-08	4.59E-09	2.23E-08	9.27E-04	2.16E-10	1.46E-07
4.62E-09	2.05E-07	2.71E-08	8.76E-09	1.20E-08	4.21E-08	4.76E-09	5.88E-08	3.00E-09	1.47E-08	4.56E-09	2.23E-08	9.25E-04	2.15E-10	1.46E-07
4.98E-09	2.17E-07	2.93E-08	7.90E-09	1.20E-08	4.21E-08	5.05E-09	5.91E-08	3.00E-09	1.47E-08	4.83E-09	2.26E-08	8.34E-04	2.32E-10	1.31E-07
5.88E-09	3.71E-07	3.14E-08	9.46E-09	1.20E-08	4.21E-08	5.40E-09	5.95E-08	3.00E-09	1.48E-08	5.16E-09	2.29E-08	9.99E-04	2.73E-10	1.57E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.38E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.05E-09	4.40E-08	1.37E-06	0.00E+00	1.20E-08	4.21E-08	1.04E-09	5.52E-08	3.00E-09	1.48E-08	9.60E-10	1.87E-08	7.32E-04	4.94E-07	1.49E-07
6.45E-09	3.80E-07	3.29E-08	9.52E-09	1.20E-08	4.21E-08	5.63E-09	5.98E-08	3.00E-09	1.48E-08	5.39E-09	2.31E-08	1.01E-03	3.00E-10	1.58E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.38E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
6.88E-09	5.55E-08	1.47E-06	0.00E+00	1.20E-08	4.21E-08	9.81E-10	5.51E-08	3.00E-09	1.48E-08	9.02E-10	1.87E-08	7.38E-04	4.81E-07	1.50E-07
5.49E-09	2.88E-07	3.01E-08	9.46E-09	1.20E-08	4.21E-08	5.15E-09	5.93E-08	3.00E-09	1.48E-08	4.93E-09	2.27E-08	9.99E-04	2.55E-10	1.57E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.38E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.02E-09	4.61E-08	1.39E-06	0.00E+00	1.20E-08	4.21E-08	1.03E-09	5.52E-08	3.00E-09	1.48E-08	9.51E-10	1.87E-08	7.34E-04	4.92E-07	1.50E-07
5.10E-09	2.56E-07	2.85E-08	9.35E-09	1.20E-08	4.21E-08	4.79E-09	5.89E-08	3.00E-09	1.48E-08	4.59E-09	2.23E-08	9.87E-04	2.37E-10	1.55E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.38E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.04E-09	4.52E-08	1.38E-06	0.00E+00	1.20E-08	4.21E-08	1.04E-09	5.52E-08	3.00E-09	1.48E-08	9.55E-10	1.87E-08	7.34E-04	4.92E-07	1.50E-07
3.77E-09	1.24E-07	2.30E-08	9.27E-09	1.20E-08	4.21E-08	3.89E-09	5.80E-08	3.00E-09	1.48E-08	3.72E-09	2.15E-08	9.79E-04	1.75E-10	1.54E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.38E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.08E-09	4.26E-08	1.36E-06	0.00E+00	1.20E-08	4.21E-08	1.05E-09	5.52E-08	3.00E-09	1.48E-08	9.69E-10	1.87E-08	7.29E-04	4.95E-07	1.49E-07
3.77E-09	1.21E-07	2.30E-08	9.27E-09	1.20E-08	4.21E-08	3.86E-09	5.80E-08	3.00E-09	1.48E-08	3.69E-09	2.14E-08	9.79E-04	1.75E-10	1.54E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.38E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.08E-09	4.26E-08	1.36E-06	0.00E+00	1.20E-08	4.21E-08	1.05E-09	5.52E-08	3.00E-09	1.48E-08	9.69E-10	1.87E-08	7.29E-04	4.95E-07	1.49E-07
3.74E-09	1.18E-07	2.27E-08	9.28E-09	1.20E-08	4.21E-08	3.84E-09	5.80E-08	3.00E-09	1.48E-08	3.67E-09	2.14E-08	9.80E-04	1.73E-10	1.54E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.38E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
7.08E-09	4.26E-08	1.36E-06	0.00E+00	1.20E-08	4.21E-08	1.05E-09	5.52E-08	3.00E-09	1.48E-08	9.69E-10	1.87E-08	7.29E-04	4.95E-07	1.49E-07
7.82E-09	6.38E-08	1.61E-07	1.38E-08	1.20E-08	4.22E-08	1.03E-09	5.52E-08	3.00E-09	1.48E-08	9.50E-10	1.87E-08	1.40E-03	2.07E-09	6.20E-09
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08	2.11E-08	0.00E+00	3.31E-08	3.00E-09	7.39E-09	0.00E+00	1.04E-08	0.00E+00	0.00E+00	0.00E+00
1.08E-08	1.11E-06	3.44E-08	1.20E-08	3.60E-08	8.14E-08	2.89E-08	1.46E-07	9.00E-09	2.85E-08	2.76E-08	6.51E-08	1.27E-03	5.01E-10	1.99E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08	4.07E-08	0.00E+00	7.67E-08	9.00E-09	1.43E-08	0.00E+00	2.33E-08	0.00E+00	0.00E+00	0.00E+00
1.28E-08	1.50E-07	2.70E-06	0.00E+00	3.60E-08	8.14E-08	1.87E-09	1.19E-07	9.00E-09	2.85E-08	1.72E-09	3.92E-08	1.01E-03	8.97E-07	2.05E-07
1.05E-08	1.23E-06	3.35E-08	1.15E-08	3.60E-08	8.14E-08	2.85E-08	1.46E-07	9.00E-09	2.85E-08	2.73E-08	6.47E-08	1.21E-03	4.87E-10	1.91E-07
1.08E-08	1.26E-06	3.45E-08	1.15E-08	3.60E-08	8.14E-08	3.02E-08	1.48E-07	9.00E-09	2.85E-08	2.89E-08	6.63E-08	1.21E-03	5.02E-10	1.91E-07
1.01E-08	1.11E-06	3.53E-08	1.29E-08	3.60E-08	8.11E-08	2.57E-08	1.43E-07	9.00E-09	2.84E-08	2.46E-08	6.20E-08	1.36E-03	4.67E-10	2.15E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08	4.10E-08	0.00E+00	7.70E-08	9.00E-09	1.43E-08	0.00E+00	2.33E-08	0.00E+00	0.00E+00	0.00E+00
1.29E-08	1.52E-07	2.83E-06	0.00E+00	3.60E-08	8.15E-08	1.88E-09	1.19E-07	9.00E-09	2.85E-08	1.73E-09	3.92E-08	1.01E-03	9.04E-07	2.07E-07
2.09E-08	2.25E-06	7.77E-08	1.44E-08	3.60E-08	8.21E-08	2.26E-08	1.41E-07	9.00E-09	2.87E-08	2.16E-08	5.94E-08	1.52E-03	9.72E-10	2.40E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08	4.09E-08	0.00E+00	7.69E-08	9.00E-09	1.43E-08	0.00E+00	2.33E-08	0.00E+00	0.00E+00	0.00E+00
1.29E-08	1.68E-07	3.10E-06	0.00E+00	3.60E-08	8.02E-08	1.84E-09	1.18E-07	9.00E-09	2.81E-08	1.69E-09	3.88E-08	1.05E-03	9.01E-07	2.15E-07

8.02E-09	6.83E-07	2.80E-08	1.35E-08	3.60E-08	8.22E-08	1.55E-08	1.34E-07	9.00E-09	2.88E-08	1.48E-08	5.26E-08	1.43E-03	3.72E-10	2.25E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08	4.12E-08	0.00E+00	7.72E-08	9.00E-09	1.44E-08	0.00E+00	2.34E-08	0.00E+00	0.00E+00	0.00E+00
1.30E-08	1.51E-07	2.86E-06	0.00E+00	3.60E-08	8.22E-08	1.90E-09	1.20E-07	9.00E-09	2.88E-08	1.75E-09	3.95E-08	1.04E-03	9.12E-07	2.13E-07
9.64E-09	9.49E-07	3.76E-08	1.39E-08	3.60E-08	8.06E-08	1.98E-08	1.36E-07	9.00E-09	2.82E-08	1.89E-08	5.62E-08	1.47E-03	4.48E-10	2.31E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08	4.11E-08	0.00E+00	7.71E-08	9.00E-09	1.44E-08	0.00E+00	2.34E-08	0.00E+00	0.00E+00	0.00E+00
1.30E-08	1.76E-07	3.30E-06	0.00E+00	3.60E-08	8.05E-08	1.84E-09	1.18E-07	9.00E-09	2.82E-08	1.69E-09	3.89E-08	1.07E-03	9.08E-07	2.18E-07
9.15E-09	8.74E-07	3.42E-08	1.38E-08	3.60E-08	8.09E-08	1.88E-08	1.36E-07	9.00E-09	2.83E-08	1.80E-08	5.53E-08	1.45E-03	4.25E-10	2.29E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08	4.11E-08	0.00E+00	7.71E-08	9.00E-09	1.44E-08	0.00E+00	2.34E-08	0.00E+00	0.00E+00	0.00E+00
1.30E-08	1.65E-07	3.11E-06	0.00E+00	3.60E-08	8.08E-08	1.87E-09	1.19E-07	9.00E-09	2.83E-08	1.72E-09	3.90E-08	1.06E-03	9.10E-07	2.16E-07
3.13E-09	9.95E-06	1.16E-08	3.43E-08	3.60E-08	2.10E-07	1.64E-08	2.62E-07	9.00E-09	7.35E-08	1.57E-08	9.82E-08	3.62E-03	1.45E-10	5.70E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08	1.05E-07	0.00E+00	1.41E-07	9.00E-09	3.68E-08	0.00E+00	4.58E-08	0.00E+00	0.00E+00	0.00E+00
8.13E-09	2.36E-07	5.22E-06	0.00E+00	3.60E-08	2.10E-07	1.16E-09	2.47E-07	9.00E-09	7.35E-08	1.06E-09	8.36E-08	9.09E-04	2.02E-07	1.85E-07
1.00E-08	1.08E-06	3.27E-08	1.20E-08	3.60E-08	8.08E-08	2.51E-08	1.42E-07	9.00E-09	2.83E-08	2.40E-08	6.13E-08	1.27E-03	4.66E-10	2.00E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08	4.08E-08	0.00E+00	7.68E-08	9.00E-09	1.43E-08	0.00E+00	2.33E-08	0.00E+00	0.00E+00	0.00E+00
1.28E-08	1.55E-07	2.80E-06	0.00E+00	3.60E-08	8.07E-08	1.86E-09	1.19E-07	9.00E-09	2.82E-08	1.71E-09	3.90E-08	1.02E-03	8.98E-07	2.07E-07
8.51E-09	7.31E-07	3.39E-08	1.40E-08	3.60E-08	7.96E-08	1.49E-08	1.30E-07	9.00E-09	2.79E-08	1.42E-08	5.11E-08	1.48E-03	3.95E-10	2.33E-07
0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08	4.09E-08	0.00E+00	7.69E-08	9.00E-09	1.43E-08	0.00E+00	2.33E-08	0.00E+00	0.00E+00	0.00E+00
2.99E-07	2.01E-06	2.50E-05	1.62E-08	2.00E-08	8.24E-08	1.03E-09	1.03E-07	5.00E-09	2.88E-08	9.43E-10	3.48E-08	1.64E-03	6.80E-08	9.49E-08
0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-08	4.14E-08	0.00E+00	6.14E-08	5.00E-09	1.45E-08	0.00E+00	1.95E-08	0.00E+00	0.00E+00	0.00E+00
1.15E-09	1.82E-08	5.48E-07	5.28E-09	8.00E-09	9.10E-08	1.12E-09	1.00E-07	2.00E-09	3.19E-08	1.03E-09	3.49E-08	5.34E-04	4.70E-10	3.24E-09
0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-08	5.50E-08	0.00E+00	8.13E-08	6.57E-09	1.93E-08	0.00E+00	2.58E-08	0.00E+00	0.00E+00	0.00E+00

Operation-Related Annual Vehicle Fuel/Energy Usage Summary

Existing - Baseline Year 2019

VMT Scenario

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
Existing Baseline	284,999,873	12,421,204	22.94	25,473,771	3,074,054	8.29	676,576	116,984	5.78	2,572,479	874,658	2.94

Existing - Year 2045

VMT Scenario

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
Existing Year 2045	254,915,559	7,993,867	31.89	22,372,357	2,593,587	8.63	504,183	58,283	8.65	35,930,601	9,315,923	3.86

Proposed Project (GP 2045)

VMT Scenario

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
Proposed Project	409,356,200	12,836,953	31.89	35,926,654	4,164,912	8.63	809,643	93,595	8.65	57,699,162	14,959,976	3.86

Net Change

VMT Scenario

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
From Existing Baseline	124,356,326	415,749	8.94	10,452,883	1,090,858	0.34	133,066	-23,390	2.87	55,126,683	14,085,318	0.92
From Existing 2045	154,440,641	4,843,086	0.00	13,554,297	1,571,325	0.00	305,460	35,311	0.00	21,768,561	5,644,054	0.00

Notes

** VMT with RTAC based on VMT data provided by Chen Ryan Transportation.*

*** Fuel consumption rates based on data obtained from EMFAC2021 Web Database, Version 1.0.2. https://arb.ca.gov/emfac/emissions-inventory/517d3e0c599c7b26ab4e9feca9c2424afa4526d9*

*****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 Baseline Year 2019: VMT

Vehicle type	Fleet percent	VMT
LDA	51.24%	160,738,647
LDT1	4.08%	12,796,782
LDT2	18.14%	56,924,910
MDV	16.11%	50,529,803
LHD1	3.10%	9,722,985
LHD2	0.88%	2,745,914
MHD	1.39%	4,356,300
HHD	4.09%	12,843,538
OBUS	0.04%	126,474
UBUS	0.12%	377,195
MCY	0.38%	1,190,194
SBUS	0.09%	284,833
MH	0.19%	601,919
All Other Buses	0.03%	88,183
Motor Coach	0.01%	39,238
PTO	0.11%	355,786
	100%	313,722,700

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	98.12%	0.37%	0.00%	1.52%	
LDT1	99.93%	0.04%	0.00%	0.03%	
LDT2	99.64%	0.28%	0.00%	0.08%	
MDV	98.13%	1.70%	0.00%	0.17%	
LHD1	52.50%	47.50%	0.00%	0.00%	
LHD2	26.35%	73.65%	0.00%	0.00%	
MHD	9.07%	90.25%	0.68%	0.00%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.04%	97.45%	2.50%	0.00%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	49.81%	46.19%	3.99%	0.00%	<< OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	37.30%	0.06%	62.63%	0.01%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	42.87%	31.25%	25.88%	0.00%	
MH	74.48%	25.52%	0.00%	0.00%	
All Other Buses	0.00%	88.50%	11.50%	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	157,711,170	27.60	5,714,697	589,677	41.88	14,079	0	0	0	2,437,801	2.93	833,331
LDT1	12,788,279	22.87	559,225	4,835	24.49	197	0	0	0	3,667	2.60	1,412
LDT2	56,722,317	21.66	2,618,414	158,132	30.18	5,240	0	0	0	44,461	3.25	13,690
MDV	49,585,097	17.83	2,780,668	858,179	22.56	38,036	0	0	0	86,528	3.30	26,225
LHD1	5,104,867	11.94	427,591	4,618,118	20.29	227,558	0	0	0	0	0.00	0
LHD2	723,600	11.06	65,447	2,022,314	16.71	121,013	0	0	0	0	0.00	0
MHD	394,930	4.88	80,850	3,931,643	8.88	442,962	29,727	0	0	0	0.00	0
HHD	5,300	3.49	1,517	12,516,536	5.96	2,099,522	321,701	5.75	55,923	0	0.00	0
OBUS	63,001	4.91	12,843	58,422	8.16	7,158	5,051	0	0	0	0.00	0
UBUS	140,702	5.63	24,981	232	11.26	21	236,239	3.94	60,023	23	0.49	0
MCY	1,190,194	41.28	28,833	0	0.00	0	0	0	0	0	0.00	0
SBUS	122,096	8.59	14,222	89,017	7.28	12,223	73,720	0	0	0	0.00	0
MH	448,321	4.88	91,916	153,599	10.38	14,801	0	0	0	0	0.00	0
All Other Buses	0	0	0	78,044	9.43	8,275	10,139	10	1,038	0	0.00	0
Motor Coach	0	0	0	39,238	5.64	6,959	0	0	0	0	0.00	0
PTO	0	0	0	355,786	4.68	76,009	0	0	0	0	0.00	0
	284,999,873		**12,421,204**	**25,473,771**		**3,074,054**	**676,576**		**116,984**	**2,572,479**		**874,658**

Existing Year 2045: VMT

Vehicle type	Fleet percent	VMT
LDA	48.22%	151,265,217
LDT1	2.76%	8,664,897
LDT2	23.40%	73,400,685
MDV	13.94%	43,743,668
LHD1	2.38%	7,475,837
LHD2	0.61%	1,923,604
MHD	1.84%	5,780,800
HHD	6.16%	19,318,553
OBUS	0.02%	61,460
UBUS	0.14%	433,275
MCY	0.25%	791,831
SBUS	0.06%	187,318
MH	0.05%	169,466
All Other Buses	0.03%	84,381
Motor Coach	0.01%	34,881
PTO	0.12%	386,828
	100%	313,722,700

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	86.90%	0.05%	0.00%	13.05%	
LDT1	96.03%	0.00%	0.00%	3.97%	
LDT2	95.70%	0.36%	0.00%	3.94%	
MDV	93.59%	1.02%	0.00%	5.39%	
LHD1	33.13%	22.88%	0.00%	43.98%	
LHD2	15.26%	43.21%	0.00%	41.53%	
MHD	2.89%	47.19%	0.83%	49.08%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.00%	82.34%	1.97%	15.69%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	15.86%	55.47%	10.53%	18.15%	<<OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	15.20%	0.00%	0.00%	84.80%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	24.39%	9.94%	26.96%	38.71%	
MH	62.87%	37.13%	0.00%	0.00%	
All Other Buses	0.00%	77.46%	22.54%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	49.64%	0.00%	50.36%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	131,454,009	36.68	3,583,886	78,504	55.04	1,426	0	0	0	19,732,703	2.70	7,317,999
LDT1	8,320,916	31.68	262,692	95	29.92	3	0	0	0	343,886	2.79	123,194
LDT2	70,242,509	30.72	2,286,901	264,779	40.36	6,561	0	0	0	2,893,397	2.83	1,023,114
MDV	40,940,206	25.29	1,618,659	444,493	30.59	14,531	0	0	0	2,358,969	2.77	851,616
LHD1	2,476,985	17.18	144,208	1,710,638	21.87	78,203	0	0	0	3,288,214	1.77	0
LHD2	293,602	15.31	19,182	831,108	18.58	44,728	0	0	0	798,893	1.77	0
MHD	167,062	6.03	27,721	2,728,091	9.95	274,219	48,200	0	0	2,837,447	0.95	0
HHD	580	5.23	111	15,906,757	7.51	2,117,579	379,986	6.72	56,570	3,031,231	0.56	0
OBUS	9,749	5.92	1,648	34,090	9.29	3,671	6,469	0	0	11,153	0.00	0
UBUS	65,876	16.06	4,101	0	0.00	0	0	0.00	0	367,399	0.50	0
MCY	791,831	43.58	18,170	0	0.00	0	0	0	0	0	0.00	0
SBUS	45,683	9.56	4,781	18,613	8.36	2,227	50,507	0	0	72,515	0.86	0
MH	106,550	4.89	21,808	62,915	10.29	6,116	0	0	0	0	0.00	0
All Other Buses	0	0	0	65,359	10.75	6,081	19,022	11	1,714	0	0.00	0
Motor Coach	0	0	0	34,881	6.55	5,328	0	0	0	0	0.00	0
PTO	0	0	0	192,035	5.83	32,913	0	0	0	194,792	0.48	0
	254,915,559		**7,993,867**	**22,372,357**		**2,593,587**	**504,183**		**58,283**	**35,930,601**		**9,315,923**

Proposed Project Year 2045 (General Plan 2045): VMT

Vehicle type	Fleet percent	VMT
LDA	48.22%	242,909,278
LDT1	2.76%	13,914,526
LDT2	23.40%	117,870,504
MDV	13.94%	70,245,778
LHD1	2.38%	12,005,074
LHD2	0.61%	3,089,019
MHD	1.84%	9,283,098
HHD	6.16%	31,022,703
OBUS	0.02%	98,696
UBUS	0.14%	695,775
MCY	0.25%	1,271,562
SBUS	0.06%	300,805
MH	0.05%	272,137
All Other Buses	0.03%	135,503
Motor Coach	0.01%	56,013
PTO	0.12%	621,187
	100%	503,791,659

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	86.90%	0.05%	0.00%	13.05%	
LDT1	96.03%	0.00%	0.00%	3.97%	
LDT2	95.70%	0.36%	0.00%	3.94%	
MDV	93.59%	1.02%	0.00%	5.39%	
LHD1	33.13%	22.88%	0.00%	43.98%	
LHD2	15.26%	43.21%	0.00%	41.53%	
MHD	2.89%	47.19%	0.83%	49.08%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.00%	82.34%	1.97%	15.69%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	15.86%	55.47%	10.53%	18.15%	<< OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	15.20%	0.00%	0.00%	84.80%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	24.39%	9.94%	26.96%	38.71%	
MH	62.87%	37.13%	0.00%	0.00%	
All Other Buses	0.00%	77.46%	22.54%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	49.64%	0.00%	50.36%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	211,095,446	36.68	5,755,184	126,066	55.04	2,291	0	0	0	31,687,765	2.70	11,751,610
LDT1	13,362,144	31.68	421,843	153	29.92	5	0	0	0	552,229	2.79	197,831
LDT2	112,798,947	30.72	3,672,420	425,195	40.36	10,536	0	0	0	4,646,362	2.83	1,642,967
MDV	65,743,838	25.29	2,599,324	713,789	30.59	23,334	0	0	0	3,788,151	2.77	1,367,568
LHD1	3,977,667	17.18	231,576	2,747,028	21.87	125,583	0	0	0	5,280,379	1.77	0
LHD2	471,481	15.31	30,804	1,334,635	18.58	71,827	0	0	0	1,282,903	1.77	0
MHD	268,276	6.03	44,516	4,380,905	9.95	440,355	77,402	0	0	4,556,516	0.95	0
HHD	931	5.23	178	25,543,868	7.51	3,400,515	610,200	6.72	90,843	4,867,703	0.56	0
OBUS	15,655	5.92	2,646	54,743	9.29	5,895	10,388	0	0	17,910	0.00	0
UBUS	105,787	16.06	6,586	0	0.00	0	0	0.00	0	589,988	0.50	0
MCY	1,271,562	43.58	29,179	0	0.00	0	0	0	0	0	0.00	0
SBUS	73,361	9.56	7,677	29,889	8.36	3,576	81,106	0	0	116,449	0.86	0
MH	171,104	4.89	35,021	101,033	10.29	9,822	0	0	0	0	0.00	0
All Other Buses	0	0	0	104,957	10.75	9,766	30,546	11	2,752	0	0.00	0
Motor Coach	0	0	0	56,013	6.55	8,555	0	0	0	0	0.00	0
PTO	0	0	0	308,380	5.83	52,853	0	0	0	312,807	0.48	0
	409,356,200		**12,836,953**	**35,926,654**		**4,164,912**	**809,643**		**93,595**	**57,699,162**		**14,959,976**

EMFAC Fuel Usage: Year 2019

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	10,137	1,075	9.43	1,317	135	9.77	0	0	0.00
LDA	20,485,308	742,289	27.60	76,594	1,829	41.88	0	0	0.00	316,649	108,242	2.93
LDT1	1,661,086	72,639	22.87	628	26	24.49	0	0	0.00	476	183	2.60
LDT2	7,367,735	340,109	21.66	20,540	681	30.18	0	0	0.00	5,775	1,778	3.25
LHD1	663,078	55,540	11.94	599,853	29,558	20.29	0	0	0.00	0	0	0.00
LHD2	93,989	8,501	11.06	262,681	15,719	16.71	0	0	0.00	0	0	0.00
MCY	154,596	3,745	41.28	0	0	0.00	0	0	0.00	0	0	0.00
MDV	6,440,672	361,185	17.83	111,470	4,941	22.56	0	0	0.00	11,239	3,406	3.30
MH	58,233	11,939	4.88	19,951	1,922	10.38	0	0	0.00	0	0	0.00
Motor coach	0	0	0.00	5,097	904	5.64	0	0	0.00	0	0	0.00
OBUS	16,428	3,349	4.91	0	0	0.00	0	0	0.00	0	0	0.00
PTO	0	0	0.00	46,214	9,873	4.68	0	0	0.00	0	0	0.00
SBUS	15,859	1,847	8.59	11,563	1,588	7.28	9,576	2,361	4.06	0	0	0.00
T6	51,298	10,502	4.88	510,686	57,537	8.88	3,861	438	8.81	0	0	0.00
T7	688	197	3.49	1,625,789	272,710	5.96	41,786	7,264	5.75	0	0	0.00
UBUS	18,276	3,245	5.63	30	3	11.26	30,685	7,796	3.94	3	6	0.49
Total	**37,027,247**	**1,615,087**	**22.93**	**3,301,233**	**398,363**	**8.29**	**87,225**	**17,995**	**4.85**	**334,143**	**113,616**	**2.94**

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Riverside (SC)
Calendar Year: 2019
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
Riverside (SC)	2019	All Other Buses	Aggregate	Aggregate	Diesel	208.3349609	10137.17451	10137.17451	0	1854.181	1.074884091	0
Riverside (SC)	2019	All Other Buses	Aggregate	Aggregate	Natural Gas	20.31923405	1316.989021	1316.989021	0	180.8412	0.134822227	0
Riverside (SC)	2019	LDA	Aggregate	Aggregate	Gasoline	475839.6385	20289766.96	20289766.96	0	2241307	735.8204521	0
Riverside (SC)	2019	LDA	Aggregate	Aggregate	Diesel	1899.967093	76593.90777	76593.90777	0	8694.823	1.828795111	0
Riverside (SC)	2019	LDA	Aggregate	Aggregate	Electricity	4471.112672	149964.7737	0	149964.8	22676.5	0	57898.77993
Riverside (SC)	2019	LDA	Aggregate	Aggregate	Plug-in Hybrid	7097.38712	362225.3813	195541.0903	166684.3	29347.7	6.468968858	50343.62387
Riverside (SC)	2019	LDT1	Aggregate	Aggregate	Gasoline	46765.34795	1661078.377	1661078.377	0	203793.3	72.63826287	0
Riverside (SC)	2019	LDT1	Aggregate	Aggregate	Diesel	31.82381996	628.0422794	628.0422794	0	100.3007	0.025643578	0
Riverside (SC)	2019	LDT1	Aggregate	Aggregate	Electricity	19.22518013	469.8365772	0	469.8366	87.94872	0	181.3956965
Riverside (SC)	2019	LDT1	Aggregate	Aggregate	Plug-in Hybrid	0.272685855	14.26208366	7.728218549	6.533865	1.127556	0.000256821	1.973422004
Riverside (SC)	2019	LDT2	Aggregate	Aggregate	Gasoline	176122.0726	7361640.798	7361640.798	0	825695.7	339.9063854	0
Riverside (SC)	2019	LDT2	Aggregate	Aggregate	Diesel	436.7618952	20539.96241	20539.96241	0	2123.642	0.68065631	0
Riverside (SC)	2019	LDT2	Aggregate	Aggregate	Electricity	11.34740185	404.3923381	0	404.3923	58.89302	0	156.1288188
Riverside (SC)	2019	LDT2	Aggregate	Aggregate	Plug-in Hybrid	207.3229349	11465.07498	6094.393014	5370.682	857.2803	0.202803483	1622.106025
Riverside (SC)	2019	LHD1	Aggregate	Aggregate	Gasoline	19394.39179	663077.8331	663077.8331	0	288947.5	55.540305	0
Riverside (SC)	2019	LHD1	Aggregate	Aggregate	Diesel	15926.27685	599853.3341	599853.3341	0	200332.5	29.5578622	0
Riverside (SC)	2019	LHD2	Aggregate	Aggregate	Gasoline	2656.122338	93989.36526	93989.36526	0	39572.27	8.50100197	0
Riverside (SC)	2019	LHD2	Aggregate	Aggregate	Diesel	6769.700352	262680.9269	262680.9269	0	85154.31	15.71855766	0
Riverside (SC)	2019	MCY	Aggregate	Aggregate	Gasoline	25055.52838	154595.7773	154595.7773	0	50111.06	3.745113821	0
Riverside (SC)	2019	MDV	Aggregate	Aggregate	Gasoline	163466.8978	6427632.001	6427632.001	0	755020.5	360.745131	0
Riverside (SC)	2019	MDV	Aggregate	Aggregate	Diesel	2568.894843	111469.9276	111469.9276	0	12327.93	4.94052791	0
Riverside (SC)	2019	MDV	Aggregate	Aggregate	Electricity	5.649260859	140.7680375	0	140.768	26.20457	0	54.34808069
Riverside (SC)	2019	MDV	Aggregate	Aggregate	Plug-in Hybrid	472.8485082	24138.80066	13040.3889	11098.41	1955.229	0.439466231	3352.051137
Riverside (SC)	2019	MH	Aggregate	Aggregate	Gasoline	6402.441373	58232.95353	58232.95353	0	640.5002	11.93903846	0
Riverside (SC)	2019	MH	Aggregate	Aggregate	Diesel	2164.987325	19951.14185	19951.14185	0	216.4987	1.922474509	0
Riverside (SC)	2019	Motor Coach	Aggregate	Aggregate	Diesel	37.82542614	5096.688488	5096.688488	0	869.2283	0.903953929	0
Riverside (SC)	2019	OBUS	Aggregate	Aggregate	Gasoline	445.504709	16427.86994	16427.86994	0	8913.658	3.34893693	0
Riverside (SC)	2019	PTO	Aggregate	Aggregate	Diesel	0	46213.50061	46213.50061	0	0	9.872860001	0
Riverside (SC)	2019	SBUS	Aggregate	Aggregate	Gasoline	422.1299909	15859.26942	15859.26942	0	1688.52	1.847288945	0
Riverside (SC)	2019	SBUS	Aggregate	Aggregate	Diesel	522.8354136	11562.50573	11562.50573	0	7570.657	1.587692585	0
Riverside (SC)	2019	SBUS	Aggregate	Aggregate	Natural Gas	371.1768314	9575.528072	9575.528072	0	5374.641	2.361226513	0
Riverside (SC)	2019	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	4.072125535	268.1344205	268.1344205	0	93.57744	0.029764427	0
Riverside (SC)	2019	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	5.433664441	367.8322079	367.8322079	0	124.8656	0.040529696	0
Riverside (SC)	2019	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	14.81454259	961.1560831	961.1560831	0	340.4382	0.104891949	0
Riverside (SC)	2019	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	28.35254205	6022.664692	6022.664692	0	651.5414	0.615885329	0
Riverside (SC)	2019	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.027424867	6.192080887	6.192080887	0	0.630223	0.000597352	0
Riverside (SC)	2019	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	442.1598039	13806.884	13806.884	0	6309.62	1.567021306	0
Riverside (SC)	2019	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	0.758301169	25.32393971	25.32393971	0	10.82096	0.003000797	0
Riverside (SC)	2019	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	382.2706228	13216.64923	13216.64923	0	5455.002	1.515060471	0
Riverside (SC)	2019	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	0.692567672	23.63003813	23.63003813	0	9.882941	0.00276627	0
Riverside (SC)	2019	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	1170.777704	38132.71792	38132.71792	0	16707	4.247816971	0
Riverside (SC)	2019	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	4.140172515	137.7665658	137.7665658	0	59.08026	0.016362788	0
Riverside (SC)	2019	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	167.3683218	8789.386077	8789.386077	0	2388.346	0.950950223	0
Riverside (SC)	2019	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	1.89115188	105.2830812	105.2830812	0	26.98674	0.011744788	0
Riverside (SC)	2019	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	1616.970028	58358.31552	58358.31552	0	18692.17	6.639133593	0
Riverside (SC)	2019	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	1.757245508	77.94607934	77.94607934	0	20.31376	0.008966733	0
Riverside (SC)	2019	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	3388.619914	147422.2866	147422.2866	0	39172.45	16.81262499	0
Riverside (SC)	2019	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	6.204344778	277.7584027	277.7584027	0	71.72223	0.031632375	0
Riverside (SC)	2019	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	2614.387068	103062.1657	103062.1657	0	30222.31	11.60392033	0
Riverside (SC)	2019	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	5.484323334	240.771254	240.771254	0	63.39878	0.027691275	0
Riverside (SC)	2019	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	1231.916509	54180.8439	54180.8439	0	14240.95	6.101712093	0
Riverside (SC)	2019	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	15.98341046	1029.663009	1029.663009	0	184.7682	0.113749656	0
Riverside (SC)	2019	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	19.36795587	777.0150979	777.0150979	0	223.8936	0.087671067	0
Riverside (SC)	2019	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	404.2853799	23738.53492	23738.53492	0	4673.539	2.441493357	0
Riverside (SC)	2019	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	3.840383612	276.3663554	276.3663554	0	44.39483	0.030420111	0
Riverside (SC)	2019	T6 OOS Class 4	Aggregate	Aggregate	Diesel	2.349034614	154.6752499	154.6752499	0	53.98082	0.017169822	0
Riverside (SC)	2019	T6 OOS Class 5	Aggregate	Aggregate	Diesel	3.134448028	212.1866286	212.1866286	0	72.02962	0.023379844	0
Riverside (SC)	2019	T6 OOS Class 6	Aggregate	Aggregate	Diesel	8.545874391	554.4497312	554.4497312	0	196.3842	0.060507668	0
Riverside (SC)	2019	T6 OOS Class 7	Aggregate	Aggregate	Diesel	16.37118602	4031.538998	4031.538998	0	376.2099	0.412048665	0
Riverside (SC)	2019	T6 Public Class 4	Aggregate	Aggregate	Diesel	86.12784527	2695.741347	2695.741347	0	441.8358	0.319582381	0
Riverside (SC)	2019	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	1.113245921	46.78975832	46.78975832	0	5.710952	0.005576118	0
Riverside (SC)	2019	T6 Public Class 5	Aggregate	Aggregate	Diesel	116.5048995	4269.234437	4269.234437	0	597.6701	0.507917798	0
Riverside (SC)	2019	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	17.63511936	753.466431	753.466431	0	90.46816	0.087553651	0
Riverside (SC)	2019	T6 Public Class 6	Aggregate	Aggregate	Diesel	201.7946224	6219.075832	6219.075832	0	1035.206	0.745461647	0
Riverside (SC)	2019	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	6.557182713	269.4709229	269.4709229	0	33.63835	0.031706154	0
Riverside (SC)	2019	T6 Public Class 7	Aggregate	Aggregate	Diesel	355.7746722	13237.81049	13237.81049	0	1825.124	1.584628882	0
Riverside (SC)	2019	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	9.201246356	515.7880387	515.7880387	0	47.20239	0.058225456	0
Riverside (SC)	2019	T6 Utility Class 5	Aggregate	Aggregate	Diesel	170.765324	7049.356756	7049.356756	0	2185.796	0.761734793	0
Riverside (SC)	2019	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.776495335	32.30309843	32.30309843	0	9.93914	0.003551647	0
Riverside (SC)	2019	T6 Utility Class 6	Aggregate	Aggregate	Diesel	33.14012193	1323.095471	1323.095471	0	424.1936	0.144888068	0
Riverside (SC)	2019	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.363073487	15.19488969	15.19488969	0	4.647341	0.001634626	0
Riverside (SC)	2019	T6 Utility Class 7	Aggregate	Aggregate	Diesel	38.5583151	1834.455686	1834.455686	0	493.5464	0.201161613	0

Riverside (SC)	2019	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.540118659	27.55075522	27.55075522	0	6.913519	0.002906038	0
Riverside (SC)	2019	T6TS	Aggregate	Aggregate	Gasoline	1421.462874	51297.92755	51297.92755	0	28440.63	10.50170922	0
Riverside (SC)	2019	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1549.380665	331977.1715	331977.1715	0	35604.77	55.5929716	0
Riverside (SC)	2019	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	5.817582043	1296.59245	1296.59245	0	133.688	0.230924998	0
Riverside (SC)	2019	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	1434.68692	394661.0529	394661.0529	0	32969.11	65.99880297	0
Riverside (SC)	2019	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	581.5576757	143301.8338	143301.8338	0	13364.2	24.13230747	0
Riverside (SC)	2019	T7 POLA Class 8	Aggregate	Aggregate	Diesel	1705.626206	227331.5951	227331.5951	0	27904.04	38.10077485	0
Riverside (SC)	2019	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	79.6766561	10624.17239	10624.17239	0	1303.51	1.934252726	0
Riverside (SC)	2019	T7 Public Class 8	Aggregate	Aggregate	Diesel	744.5349654	28725.59238	28725.59238	0	3819.464	5.047098	0
Riverside (SC)	2019	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	96.87977586	5088.592007	5088.592007	0	496.9933	0.854567316	0
Riverside (SC)	2019	T7 Single Concrete/Transit M	Aggregate	Aggregate	Diesel	1254.43242	87954.05123	87954.05123	0	11816.75	14.782823	0
Riverside (SC)	2019	T7 Single Concrete/Transit M	Aggregate	Aggregate	Natural Gas	67.85521784	5532.370773	5532.370773	0	639.1962	0.909506051	0
Riverside (SC)	2019	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	1114.471496	68191.46853	68191.46853	0	10498.32	11.43848816	0
Riverside (SC)	2019	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	59.28693866	4670.844872	4670.844872	0	558.483	0.788614968	0
Riverside (SC)	2019	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	1056.727952	62512.90192	62512.90192	0	9954.377	10.48597064	0
Riverside (SC)	2019	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	48.92117077	3878.789038	3878.789038	0	460.8374	0.655872012	0
Riverside (SC)	2019	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	100.5032932	6518.798629	6518.798629	0	462.3151	2.44029839	0
Riverside (SC)	2019	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	68.7288551	4457.859559	4457.859559	0	316.1527	0.801084818	0
Riverside (SC)	2019	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	2943.211406	269022.8981	269022.8981	0	42764.86	43.77067781	0
Riverside (SC)	2019	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	60.34240463	6237.000901	6237.000901	0	876.7751	1.089103366	0
Riverside (SC)	2019	T7 Utility Class 8	Aggregate	Aggregate	Diesel	108.9706784	5591.766203	5591.766203	0	1394.825	0.919354585	0
Riverside (SC)	2019	T7IS	Aggregate	Aggregate	Gasoline	21.13632953	688.4253412	688.4253412	0	422.8957	0.197050873	0
Riverside (SC)	2019	UBUS	Aggregate	Aggregate	Gasoline	144.3465888	18275.95602	18275.95602	0	577.3864	3.244868476	0
Riverside (SC)	2019	UBUS	Aggregate	Aggregate	Diesel	0.3117338	30.10971099	30.10971099	0	1.246935	0.002674589	0
Riverside (SC)	2019	UBUS	Aggregate	Aggregate	Electricity	0.030745281	2.969621933	0	2.969622	0.122981	0	6.001613347
Riverside (SC)	2019	UBUS	Aggregate	Aggregate	Natural Gas	248.9435626	30685.35112	30685.35112	0	995.7743	7.796468148	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	10,929	1,017	10.75	3,181	287	11.10	0	0	0.00
LDA	21,979,996	599,250	36.68	13,126	239	55.04	0	0	0.00	3,299,441	1,223,619	2.70
LDT1	1,391,313	43,924	31.68	16	1	29.92	0	0	0.00	57,500	20,599	2.79
LDT2	11,745,021	382,385	30.72	44,273	1,097	40.36	0	0	0.00	483,796	171,072	2.83
LHD1	414,169	24,112	17.18	286,030	13,076	21.87	0	0	0.00	549,812	310,707	1.77
LHD2	49,092	3,207	15.31	138,967	7,479	18.58	0	0	0.00	133,580	75,517	1.77
MCY	132,400	3,038	43.58	0	0	0.00	0	0	0.00	0	0	0.00
MDV	6,845,478	270,651	25.29	74,322	2,430	30.59	0	0	0.00	394,436	142,396	2.77
MH	17,816	3,646	4.89	10,520	1,023	10.29	0	0	0.00	0	0	0.00
Motor coach	0	0	0.00	5,832	891	6.55	0	0	0.00	0	0	0.00
OBUS	4,793	810	5.92	0	0	0.00	0	0	0.00	5,483	5,789	0.95
PTO	0	0	0.00	32,110	5,503	5.83	0	0	0.00	32,571	67,471	0.48
SBUS	7,639	799	9.56	3,112	372	8.36	8,445	1,811	4.66	12,125	14,020	0.86
T6	27,934	4,635	6.03	456,155	45,851	9.95	8,059	899	8.96	474,440	500,784	0.95
T7	97	19	5.23	2,659,717	354,074	7.51	63,536	9,459	6.72	506,842	910,980	0.56
UBUS	11,015	686	16.06	0	0	0.00	0	0	0.00	61,432	123,966	0.50
Total	**42,626,763**	**1,337,163**	**31.88**	**3,735,109**	**433,051**	**8.63**	**83,221**	**12,456**	**6.68**	**6,011,457**	**3,566,918**	**1.69**

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Riverside (SC)
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
Riverside (SC)	2045	All Other Buses	Aggregate	Aggregate	Diesel	213.0503454	10928.51423	10928.51423	0	1896.148	1.016832271	0
Riverside (SC)	2045	All Other Buses	Aggregate	Aggregate	Natural Gas	59.7198475	3180.5808	3180.5808	0	531.5066	0.286509111	0
Riverside (SC)	2045	LDA	Aggregate	Aggregate	Gasoline	509882.6807	21566774.17	21566774.17	0	2368211	585.3929513	0
Riverside (SC)	2045	LDA	Aggregate	Aggregate	Diesel	349.8405747	13126.41234	13126.41234	0	1546.165	0.238504296	0
Riverside (SC)	2045	LDA	Aggregate	Aggregate	Electricity	68905.5869	2701747.214	0	2701747.214	324341.7	0	1043097.412
Riverside (SC)	2045	LDA	Aggregate	Aggregate	Plug-in Hybrid	23839.06765	1010915.897	413222.125	597693.7717	98574.54	13.85691861	180521.3332
Riverside (SC)	2045	LDT1	Aggregate	Aggregate	Gasoline	34632.10893	1378229.577	1378229.577	0	156343.6	43.48243013	0
Riverside (SC)	2045	LDT1	Aggregate	Aggregate	Diesel	0.380295563	15.92326898	15.92326898	0	1.768296	0.000532117	0
Riverside (SC)	2045	LDT1	Aggregate	Aggregate	Electricity	970.2006641	38453.86724	0	38453.86724	4584.789	0	14846.36652
Riverside (SC)	2045	LDT1	Aggregate	Aggregate	Plug-in Hybrid	745.4141048	32129.72615	13083.60349	19046.12266	3082.287	0.44135929	5752.496709
Riverside (SC)	2045	LDT2	Aggregate	Aggregate	Gasoline	277860.8295	11616195.53	11616195.53	0	1285862	378.0249843	0
Riverside (SC)	2045	LDT2	Aggregate	Aggregate	Diesel	1050.615449	44272.77467	44272.77467	0	4887.952	1.097012084	0
Riverside (SC)	2045	LDT2	Aggregate	Aggregate	Electricity	10799.12809	296847.493	0	296847.493	51067.59	0	114607.6325
Riverside (SC)	2045	LDT2	Aggregate	Aggregate	Plug-in Hybrid	7433.560808	315773.4215	128825.4113	186948.0101	30737.77	4.36024418	56463.871
Riverside (SC)	2045	LHD1	Aggregate	Aggregate	Gasoline	12009.66815	414168.6108	414168.6108	0	178926.2	24.11248024	0
Riverside (SC)	2045	LHD1	Aggregate	Aggregate	Diesel	8758.016267	286030.1577	286030.1577	0	110164.8	13.07612821	0
Riverside (SC)	2045	LHD1	Aggregate	Aggregate	Electricity	12662.4412	549811.5698	0	549811.5698	177360.6	0	310706.5494
Riverside (SC)	2045	LHD2	Aggregate	Aggregate	Gasoline	1472.971045	49092.2567	49092.2567	0	21945.07	3.207392488	0
Riverside (SC)	2045	LHD2	Aggregate	Aggregate	Diesel	4537.908263	138966.902	138966.902	0	57081.18	7.478894321	0
Riverside (SC)	2045	LHD2	Aggregate	Aggregate	Electricity	3180.090734	133580.3338	0	133580.3338	42087.21	0	75517.41319
Riverside (SC)	2045	MCY	Aggregate	Aggregate	Gasoline	24396.85271	132399.5029	132399.5029	0	48793.71	3.038188842	0
Riverside (SC)	2045	MDV	Aggregate	Aggregate	Gasoline	170045.3305	6764250.161	6764250.161	0	775203.3	267.8621693	0
Riverside (SC)	2045	MDV	Aggregate	Aggregate	Diesel	1900.815524	74322.17767	74322.17767	0	8598.673	2.429621427	0
Riverside (SC)	2045	MDV	Aggregate	Aggregate	Electricity	10213.72312	276786.2049	0	276786.2049	48058.69	0	106862.3195
Riverside (SC)	2045	MDV	Aggregate	Aggregate	Plug-in Hybrid	4855.492874	198877.5537	81228.20814	117649.3456	20077.46	2.788564302	35533.60887
Riverside (SC)	2045	MH	Aggregate	Aggregate	Gasoline	1796.000777	17815.95675	17815.95675	0	179.6719	3.646498991	0
Riverside (SC)	2045	MH	Aggregate	Aggregate	Diesel	1233.984798	10519.8828	10519.8828	0	123.3985	1.022669838	0
Riverside (SC)	2045	Motor Coach	Aggregate	Aggregate	Diesel	45.92332952	5832.301835	5832.301835	0	1055.318	0.890811235	0
Riverside (SC)	2045	OBUS	Aggregate	Aggregate	Gasoline	187.6852496	4793.177046	4793.177046	0	3755.206	0.810062835	0
Riverside (SC)	2045	OBUS	Aggregate	Aggregate	Electricity	109.4970861	5483.4075	0	5483.4075	2190.818	0	5788.984331
Riverside (SC)	2045	PTO	Aggregate	Aggregate	Diesel	0	32109.60355	32109.60355	0	0	5.503281961	0
Riverside (SC)	2045	PTO	Aggregate	Aggregate	Electricity	0	32570.5637	0	32570.5637	0	0	67470.53399
Riverside (SC)	2045	SBUS	Aggregate	Aggregate	Gasoline	199.0198208	7638.563692	7638.563692	0	796.0793	0.799386437	0
Riverside (SC)	2045	SBUS	Aggregate	Aggregate	Diesel	148.2870568	3112.156038	3112.156038	0	2147.197	0.372299693	0
Riverside (SC)	2045	SBUS	Aggregate	Aggregate	Electricity	448.7865621	12125.07552	0	12125.07552	5803.709	0	14020.2411
Riverside (SC)	2045	SBUS	Aggregate	Aggregate	Natural Gas	405.4545835	8445.076566	8445.076566	0	5870.982	1.811133046	0
Riverside (SC)	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	2.801033934	200.7099949	200.7099949	0	64.36776	0.019664775	0
Riverside (SC)	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	3.694289954	283.1614177	0	283.1614177	84.89478	0	299.796184
Riverside (SC)	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	3.444605706	275.8051205	275.8051205	0	79.15704	0.027011636	0
Riverside (SC)	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	4.52536421	387.9794461	0	387.9794461	103.9929	0	410.7719136
Riverside (SC)	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	15.61328682	717.4144022	717.4144022	0	358.7933	0.070504543	0
Riverside (SC)	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	20.75051048	1017.073661	0	1017.073661	476.8467	0	1076.823266
Riverside (SC)	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	40.7811822	8257.437247	8257.437247	0	937.1516	0.71090371	0
Riverside (SC)	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	12.42017571	2616.71477	0	2616.71477	285.4156	0	2770.437827
Riverside (SC)	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.026849503	5.43382181	5.43382181	0	0.617002	0.000492027	0
Riverside (SC)	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	362.853826	11928.82114	11928.82114	0	5177.924	1.21873205	0
Riverside (SC)	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	364.20934	12941.98729	0	12941.98729	5197.267	0	13649.54696
Riverside (SC)	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	2.737735144	90.5895969	90.5895969	0	39.06748	0.010053373	0
Riverside (SC)	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	346.9132096	11409.82078	11409.82078	0	4950.452	1.167313185	0
Riverside (SC)	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	348.6190226	12398.08064	0	12398.08064	4974.793	0	13075.90404
Riverside (SC)	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	2.570577178	85.31088645	85.31088645	0	36.68214	0.009455905	0
Riverside (SC)	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	1003.798624	33002.69246	33002.69246	0	14324.21	3.370208458	0
Riverside (SC)	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	1007.881684	35810.33242	0	35810.33242	14382.47	0	37768.14202
Riverside (SC)	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	7.528174094	249.3258522	249.3258522	0	107.427	0.027653964	0
Riverside (SC)	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	192.8815349	9771.289088	9771.289088	0	2752.42	0.991975163	0
Riverside (SC)	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	111.5232046	6037.958894	0	6037.958894	1591.436	0	6368.064008
Riverside (SC)	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	4.809136057	241.9405349	241.9405349	0	68.62637	0.026011503	0
Riverside (SC)	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	1264.885008	48875.62666	48875.62666	0	14622.07	4.968087612	0
Riverside (SC)	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	1270.91716	56204.40424	0	56204.40424	14691.8	0	59321.83674
Riverside (SC)	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	9.471558337	373.1832099	373.1832099	0	109.4912	0.040694924	0
Riverside (SC)	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	3201.819484	123627.56	123627.56	0	37013.03	12.57591735	0
Riverside (SC)	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	3207.459277	141977.4976	0	141977.4976	37078.23	0	149852.419
Riverside (SC)	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	23.51980127	932.2608003	932.2608003	0	271.8889	0.101442284	0
Riverside (SC)	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	2241.121007	86505.0734	86505.0734	0	25907.36	8.792575036	0
Riverside (SC)	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	2246.011333	99258.95258	0	99258.95258	25963.89	0	104764.4479
Riverside (SC)	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	16.56598419	654.9274226	654.9274226	0	191.5028	0.071315249	0
Riverside (SC)	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	1428.127742	56157.31714	56157.31714	0	16509.16	5.748269017	0
Riverside (SC)	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	766.3027748	42103.92817	0	42103.92817	8858.46	0	44439.2639
Riverside (SC)	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	35.99247227	1370.819559	1370.819559	0	416.073	0.152333353	0
Riverside (SC)	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	13.51310044	634.0963847	634.0963847	0	156.2114	0.063788137	0
Riverside (SC)	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	13.51650812	763.2961548	0	763.2961548	156.2508	0	805.6331259
Riverside (SC)	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.099543098	4.797423431	4.797423431	0	1.150718	0.000509665	0
Riverside (SC)	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	593.4024469	34350.46394	34350.46394	0	6859.732	3.142483185	0
Riverside (SC)	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	115.0157497	8161.923929	0	8161.923929	1329.582	0	8614.633058

Riverside (SC)	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	14.48366376	824.5480804	824.5480804	0	167.4312	0.085549393	0
Riverside (SC)	2045	T6 OOS Class 4	Aggregate	Aggregate	Diesel	3.810500797	279.1246702	279.1246702	0	87.56531	0.025653897	0
Riverside (SC)	2045	T6 OOS Class 5	Aggregate	Aggregate	Diesel	4.686212892	382.9088542	382.9088542	0	107.6892	0.035190441	0
Riverside (SC)	2045	T6 OOS Class 6	Aggregate	Aggregate	Diesel	21.22946384	1000.551791	1000.551791	0	487.8531	0.092153416	0
Riverside (SC)	2045	T6 OOS Class 7	Aggregate	Aggregate	Diesel	26.16866166	7275.255697	7275.255697	0	601.3558	0.598544466	0
Riverside (SC)	2045	T6 Public Class 4	Aggregate	Aggregate	Diesel	44.61653237	1526.652805	1526.652805	0	228.8828	0.162323679	0
Riverside (SC)	2045	T6 Public Class 4	Aggregate	Aggregate	Electricity	39.57795061	1566.872882	0	1566.872882	203.0349	0	1657.183918
Riverside (SC)	2045	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	8.24868649	284.6897426	284.6897426	0	42.31576	0.033540419	0
Riverside (SC)	2045	T6 Public Class 5	Aggregate	Aggregate	Diesel	80.76983059	2766.450086	2766.450086	0	414.3492	0.296375628	0
Riverside (SC)	2045	T6 Public Class 5	Aggregate	Aggregate	Electricity	71.86627465	2845.543017	0	2845.543017	368.674	0	3009.553731
Riverside (SC)	2045	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	17.01832263	574.9068522	574.9068522	0	87.304	0.068120384	0
Riverside (SC)	2045	T6 Public Class 6	Aggregate	Aggregate	Diesel	106.351412	3626.841404	3626.841404	0	545.5827	0.385659307	0
Riverside (SC)	2045	T6 Public Class 6	Aggregate	Aggregate	Electricity	92.866939	3660.859522	0	3660.859522	476.4074	0	3871.863249
Riverside (SC)	2045	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	20.67215944	704.8096129	704.8096129	0	106.0482	0.083278234	0
Riverside (SC)	2045	T6 Public Class 7	Aggregate	Aggregate	Diesel	201.932943	8399.406537	8399.406537	0	1035.916	0.870548012	0
Riverside (SC)	2045	T6 Public Class 7	Aggregate	Aggregate	Electricity	142.7592327	6910.082373	0	6910.082373	732.3549	0	7308.364014
Riverside (SC)	2045	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	39.24266536	1632.021321	1632.021321	0	201.3149	0.185756656	0
Riverside (SC)	2045	T6 Utility Class 5	Aggregate	Aggregate	Diesel	90.25823437	3580.109994	3580.109994	0	1155.305	0.357706987	0
Riverside (SC)	2045	T6 Utility Class 5	Aggregate	Aggregate	Electricity	124.2505037	5122.410363	0	5122.410363	1590.406	0	5417.654602
Riverside (SC)	2045	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.518829278	20.57946177	20.57946177	0	6.641015	0.002141639	0
Riverside (SC)	2045	T6 Utility Class 6	Aggregate	Aggregate	Diesel	17.06810781	676.8160691	676.8160691	0	218.4718	0.067627966	0
Riverside (SC)	2045	T6 Utility Class 6	Aggregate	Aggregate	Electricity	23.4744734	967.7826921	0	967.7826921	300.4733	0	1023.563515
Riverside (SC)	2045	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.098112201	3.890525834	3.890525834	0	1.255836	0.000404893	0
Riverside (SC)	2045	T6 Utility Class 7	Aggregate	Aggregate	Diesel	18.9546382	926.889312	926.889312	0	242.6194	0.092059976	0
Riverside (SC)	2045	T6 Utility Class 7	Aggregate	Aggregate	Electricity	26.11223156	1361.37886	0	1361.37886	334.2366	0	1439.845683
Riverside (SC)	2045	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.108956499	5.328015953	5.328015953	0	1.394643	0.000543237	0
Riverside (SC)	2045	T6TS	Aggregate	Aggregate	Gasoline	738.2810957	27933.839	27933.839	0	14771.53	4.63517321	0
Riverside (SC)	2045	T6TS	Aggregate	Aggregate	Electricity	623.2190344	32042.11589	0	32042.11589	12469.37	0	33838.26108
Riverside (SC)	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	2551.326696	536934.0326	536934.0326	0	58629.49	71.93211781	0
Riverside (SC)	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	714.4030208	155947.2735	0	155947.2735	16416.98	0	280312.9962
Riverside (SC)	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	9.335484673	1964.599462	1964.599462	0	214.5294	0.308844347	0
Riverside (SC)	2045	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	2848.081761	822832.8969	822832.8969	0	65448.92	104.8043156	0
Riverside (SC)	2045	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	1228.03631	298771.4702	298771.4702	0	28220.27	38.49071027	0
Riverside (SC)	2045	T7 POLA Class 8	Aggregate	Aggregate	Diesel	1978.211721	370390.5839	370390.5839	0	32363.54	51.03556349	0
Riverside (SC)	2045	T7 POLA Class 8	Aggregate	Aggregate	Electricity	362.1174592	67026.28868	0	67026.28868	5924.242	0	120417.2193
Riverside (SC)	2045	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	77.09130817	14430.52381	14430.52381	0	1261.214	2.018719678	0
Riverside (SC)	2045	T7 Public Class 8	Aggregate	Aggregate	Diesel	273.4351188	10472.81969	10472.81969	0	1402.722	1.641513634	0
Riverside (SC)	2045	T7 Public Class 8	Aggregate	Aggregate	Electricity	351.8103764	16704.03518	0	16704.03518	1804.787	0	30020.14442
Riverside (SC)	2045	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	349.876768	14475.0335	14475.0335	0	1794.868	2.199084358	0
Riverside (SC)	2045	T7 Single Concrete/Transit M	Aggregate	Aggregate	Diesel	646.8169969	42350.28164	42350.28164	0	6093.016	6.176786647	0
Riverside (SC)	2045	T7 Single Concrete/Transit M	Aggregate	Aggregate	Electricity	835.1269358	59615.98572	0	59615.98572	7866.896	0	107217.8943
Riverside (SC)	2045	T7 Single Concrete/Transit M	Aggregate	Aggregate	Natural Gas	50.52483189	3306.667596	3306.667596	0	475.9439	0.495945428	0
Riverside (SC)	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	855.817157	41324.69312	41324.69312	0	8061.798	6.292234094	0
Riverside (SC)	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	582.9403326	37448.64145	0	37448.64145	5491.298	0	67350.467
Riverside (SC)	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	68.25941546	3275.260473	3275.260473	0	643.0037	0.523384784	0
Riverside (SC)	2045	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	1297.553033	66262.50778	66262.50778	0	12222.95	9.973715397	0
Riverside (SC)	2045	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	1014.022689	66967.24194	0	66967.24194	9552.094	0	120438.949
Riverside (SC)	2045	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	101.8222347	5190.971065	5190.971065	0	959.1655	0.814622496	0
Riverside (SC)	2045	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	3.344395844	217.043035	217.043035	0	15.38422	0.078688898	0
Riverside (SC)	2045	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	83.83837286	5421.395132	0	5421.395132	385.6565	0	9746.945746
Riverside (SC)	2045	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	121.6060982	7882.471763	7882.471763	0	559.3881	1.011695359	0
Riverside (SC)	2045	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	7061.801018	466264.9493	466264.9493	0	102608	63.06836754	0
Riverside (SC)	2045	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	1288.599573	94616.60086	0	94616.60086	18723.35	0	169913.3384
Riverside (SC)	2045	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	197.8926084	13010.65041	13010.65041	0	2875.38	2.086583773	0
Riverside (SC)	2045	T7 Utility Class 8	Aggregate	Aggregate	Diesel	94.91673472	3895.662682	3895.662682	0	1214.934	0.579499545	0
Riverside (SC)	2045	T7 Utility Class 8	Aggregate	Aggregate	Electricity	62.51014344	2992.204817	0	2992.204817	800.1298	0	5377.528231
Riverside (SC)	2045	T7IS	Aggregate	Aggregate	Gasoline	1.10608314	96.98952025	96.98952025	0	22.13051	0.018552714	0
Riverside (SC)	2045	T7IS	Aggregate	Aggregate	Electricity	0.824867986	102.565411	0	102.565411	16.50396	0	184.1658642
Riverside (SC)	2045	UBUS	Aggregate	Aggregate	Gasoline	119.3998058	11014.89224	11014.89224	0	477.5992	0.685709596	0
Riverside (SC)	2045	UBUS	Aggregate	Aggregate	Electricity	462.6529387	61431.63505	0	61431.63505	1850.612	0	123965.7173

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

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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*

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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
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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

[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
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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.

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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.

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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

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[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.

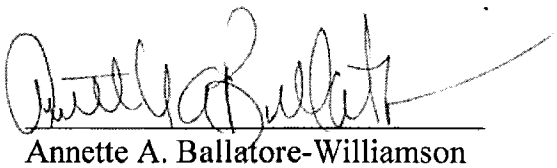
Rule 8.520 Disclosure

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



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SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
DISTRICT

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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

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