

Appendix 5.3-1 Energy Data

Appendices

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Energy Summary

VMT	51,824,629	96,323,407	44,498,778
Gallons	1,402,089	2,583,782	1,181,693
MPG	36.96	37.28	0.32

VMT	3,809,065	7,785,016	3,975,950
Gallons	240,252	526,640	286,388
MPG	15.85	14.78	-1.07

VMT	113,095	223,376	110,281
Gallons	32,737	66,653	33,916
MPG	3.45	3.35	-0.1

VMT	2,713,948	5,101,331	2,387,383
Gallons	764,534	1,677,447	912,913
MPG	3.55	3.04	-0.51

	VMT	Gallon	VMT	Gallon	VMT	Gallon	VMT	kWh
	51,457,440	1,380,296	4,158,875	281,339	119,331	35,607	2,725,209	767,706
	96,323,407	2,583,782	7,785,016	526,640	223,376	66,653	5,101,331	1,677,447
	44,865,967	1,203,486	3,626,141	245,301	104,045	31,046	2,376,122	909,741
	VMT	Gallon	VMT	Gallon	VMT	Gallon	VMT	kWh
	141366.5926	3792.021897	11425.4797	772.9101	327.8325	97.8213	7486.839	2109.084
2,407	58.73	1.58	4.75	0.32	0.14	0.04	3.11	0.88
	264624.7445	7098.302198	21387.40659	1446.813	613.6703	183.1126	14014.65	4608.371
11,383	23.247	0.624	1.879	0.127	0.054	0.016	1.231	0.405
	-35.48	-0.95	-2.87	-0.19	-0.08	-0.02	-1.88	-0.47

Land Use	Natural Gas	Electricity
Apartments High Rise	14,481,000	5,882,060
Apartments Mid Rise	11,584,800	4,705,640
Condo/Townhouses	5,293,690	1,490,560
Enclosed Parking with Elevator	0	23,475,060
General Office Building	1,180,800	2,264,400
Hotel	5,965,300	1,919,090
Parking Lot	0	159,754
Regional Shopping Center	1,754,400	10,771,200
Total	40,259,990	50,667,764
Total Existing	2,869,600	20,326,340
Net Change	37,390,390	30,341,424

Vehicle Energy

Construction-Related Fuel/Energy Usage

Fuel usage from construction activities are based on EMFAC2017 model for Year 2021 for the most conservative results.

CONSTRUCTION WORKER COMMUTE

Year	Gas		Diesel		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	kWh
All	382,526,017	13,717,546	2,519,111	57,433	4,278,681	1,418,285
Total	382,526,017	13,717,546	2,519,111	57,433	4,278,681	1,418,285

CONSTRUCTION VENDOR TRIPS

Year	Gas		Diesel	
	VMT	Gallons	VMT	Gallons
All	2,411,353	477,947	46,926,595	5,820,824
Total	2,411,353	477,947	46,926,595	5,820,824

CONSTRUCTION TRUCK HAUL TRIPS

Year	Gas		Diesel	
	VMT	Gallons	VMT	Gallons
All	236	55	174,803	26,474
Total	236	55	174,803	26,474

CONSTRUCTION OFF-ROAD EQUIPMENT

Year	Gasoline gallons	Diesel gallons
All	244,063	670,889
Total	244,063	670,889

TOTALS

	Gas		Diesel		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	kWh
	384,937,607	14,439,611	49,620,509	6,575,620	4,278,681	1,418,285
Total	384,937,607	14,439,611	49,620,509	6,575,620	4,278,681	1,418,285

Operation-Related Vehicle Fuel/Energy Usage

Existing Conditions

EXISTING COMMUTE- BASELINE YEAR

Vehicle Type	Gas		Diesel		CNG		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	Gallons	VMT	kWh
Passenger Vehicles	54,440,876	2,169,376	3,299,101	310,610	100,896	30,650	619,864	207,128
Total	54,440,876	2,169,376	3,299,101	310,610	100,896	30,650	619,864	207,128

Existing Conditions - Year 2040

EXISTING COMMUTE- YEAR 2040

Vehicle Type	Gas		Diesel		CNG		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	Gallons	VMT	kWh
Passenger Vehicles	51,457,440	1,380,296	4,158,875	281,339	119,331	35,607	2,725,209	767,706
Total	51,457,440	1,380,296	4,158,875	281,339	119,331	35,607	2,725,209	767,706

Proposed Project -- Passenger Vehicles

PROPOSED COMMUTE

Vehicle Type	Gas		Diesel		CNG		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	Gallons	VMT	kWh
Passenger Vehicles	96,323,407	2,583,782	7,785,016	526,640	223,376	66,653	5,101,331	1,677,447
Total	96,323,407	2,583,782	7,785,016	526,640	223,376	66,653	5,101,331	1,677,447

Construction Worker Trips Fuel Usage Worksheet

Note: Worker vehicles are "LD_Mix", which is 50% LDA, 25% LDT1, and 25% LDT2

Activity ¹	Daily trips ^{2,3}	Trip miles ²	Trip days ³	Annual VMT
	2021			
Demolition	18	14.7	100	26,460
Demolition Haul	0	14.7	100	0
Site Preparation	18	14.7	60	15,876
Grading	20	14.7	155	45,570
Building Construction	5093	14.7	4956	371,041,348
Paving	15	14.7	1239	273,200
Architectural Coating	1019	14.7	1239	18,559,353
				0

¹ Assumes that fuel usage would be based on EMFAC2017 model for Year 2021 for the most conservative results.

² Based on CalEEMod defaults.

Year	Gasoline ¹					Diesel ²					Electricity ³								
	LDA VMT	LDT1 VMT	LDT2 VMT	LDA mpg	LDA gallons	LDT1 mpg	LDT1 gallons	LDT2 mpg	LDT2 gallons	LDA mpg	LDA gallons	LDT1 mpg	LDT1 gallons	LDT2 mpg	LDT2 gallons	LDA m/kWh	LDA kWh	LDT1 m/kWh	LDT1 kWh
2021	194,980,903	97,490,451	97,490,451	30.91	6,129,246	26.61	3,641,655	24.37	3,946,645	48.57	37,755	24.66	803	35.25	18,876	3.02	1,232,273	3.02	186,013

¹ EMFAC2017 v1.0.2.

Year	VMT from gasoline			VMT from diesel			VMT from electricity	
	LDA	LDT1	LDT2	LDA	LDT1	LDT2	LDA	LDT1
2021	97.15%	99.40%	98.66%	0.94%	0.02%	0.68%	1.91%	0.58%
2022	96.79%	99.16%	98.44%	0.98%	0.02%	0.73%	2.24%	0.82%
2023	96.36%	98.89%	98.20%	1.01%	0.02%	0.77%	2.63%	1.09%
2024	95.89%	98.59%	97.95%	1.03%	0.02%	0.80%	3.08%	1.39%

Gasoline		Diesel		Electricity	
VMT	Gallons	VMT	Gallons	VMT	kWh
382,526,017	13,717,546	2,519,111	57,433	4,278,681	1,418,285
382,526,017	13,717,546	2,519,111	57,433	4,278,681	1,418,285

Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallon of Gasoline

Table A 3: Evidence from U.S. Department of Energy and U.S. Environmental Protection Agency's fuel economy website^[22]

Vehicle	Model year	Electric consumption	Gasoline fuel economy	Number of kWh that are equivalent to 1 gallon
Ford Fusion Energi & Ford C-Max Energi	2013	0.34 kWh per mile	43 mpg	14.6
Chevrolet Volt	2013	0.35 kWh per mile	37 mpg	12.9
Chevrolet Volt	2012	0.36 kWh per mile	37 mpg	13.3
Fisker Karma	2012	0.62 kWh per mile	20 mpg	12.4
Toyota Prius	2013	0.29 kWh per mile & 0.2 gal	50 mpg	13.1
Average for five models	-	-	-	13.3 +/- 0.8

0.34 14.6
0.35 12.9
0.36 13.3
0.34 13.3

Year Estimated Electric Consumption

2013	0.34
2014	0.34
2015	0.34
2016	0.34
2017	0.34
2018	0.34
2019	0.34
2020	0.33
2021	0.33
2022	0.33
2023	0.33
2024	0.32
2025	0.32
2026	0.32
2027	0.32
2028	0.31
2029	0.31
2030	0.31
2031	0.31
2032	0.30
2033	0.30
2034	0.30
2035	0.29
2036	0.29
2037	0.29
2038	0.29
2039	0.28
2040	0.28

Table A 5: Average power consumption per mile traveled over time for different PEV categories

Year range	2012-2020	2020-2030	2030-2040	2040-2050	2050
Efficiency improvement per year	0.3%	0.8%	0.9%	0.9%	
Year	2012	2020	2030	2040	2050
Relative energy efficiency	1.000	0.976	0.901	0.823	0.752

https://www.fhwa.dot.gov/environment/climate_change/mitigation/publications_and_tools/ev_deployment/page08.cfm

Vendor Trips Fuel Usage Worksheet

Note: Hauling vehicles are "HDT_Mix", which is 50% HHDT (T7), and 50% MHDT (T6)

Activity ¹	Daily trips ^{1,2}	Trip miles ²	Trip days ¹	Annual VMT
2021				
Demolition	4	6.9	100	2,760
Demolition Haul	0	6.9	100	0
Site Preparation	4	6.9	60	1,656
Grading	4	6.9	155	4,278
Building Construction	1472	6.9	4,956	50,337,101
Paving	0	6.9	1,239	0
Architectural Coating	0	6.9	1,239	0
				0

¹ Assumes that fuel usage would be based on EMFAC2017 model for Year 2021 for the most conservative results.

² Based on CalEEMod defaults.

Year	HHDT (T7) VMT		MHDT (T6) VMT		Gasoline ¹			Diesel ¹		
	HHDT (T7) mpg	HHDT (T7) gallons	MHDT (T6) mpg	MHDT (T6) gallons	HHDT (T7) mpg	HHDT (T7) gallons	MHDT (T6) mpg	MHDT (T6) gallons		
2021	25,172,897	25,172,897	4.27	7,650	5.06	470,298	6.60	3,654,926	10.52	2,165,898

VENDOR			
Gasoline		Diesel	
VMT	Gallons	VMT	Gallons
2,411,353	477,947	46,926,595	5,820,824
2,411,353	477,947	46,926,595	5,820,824

¹ EMFAC2017 v1.0.2.

Year	VMT from gasoline		VMT from diesel	
	HHDT (T7)	MHDT (T6)	HHDT (T7)	MHDT (T6)
2020	0.08%	18.18%	97.05%	81.82%
2021	0.13%	9.45%	95.87%	90.55%
2022	0.08%	17.35%	94.09%	82.65%
2023	0.09%	16.56%	93.86%	83.44%
2024	0.09%	15.79%	93.64%	84.21%

Truck Haul Trips Fuel Usage Worksheet

Note: Hauling vehicles are HHDT (T7)

Activity	2021	Total Trips ¹	Mi/Trip ¹	Annual VMT
Demolition Debris Haul		9117	20	182,340

¹ Based on information provided.

² Based on CalEEMod defaults.

Year	VMT	Gasoline ¹		Diesel ¹	
		HHDT (T7) mpg	HHDT (T7) gallons	HHDT (T7) mpg	HHDT (T7) gallons
2021	182,340	4.27	55	6.60	26,474

Gasoline		Diesel	
VMT	Gallons	VMT	Gallons
236	55	174,803	26,474
236	55	174,803	26,474

¹ EMFAC2017 v1.0.2.

Year	VMT from gasoline	VMT from diesel
2020	0.08%	97.05%
2021	0.13%	95.87%
2022	0.09%	96.91%
2023	0.09%	96.79%
2024	0.10%	96.67%

Off-Road Construction Equipment Fuel Usage Worksheet

Year	Total Gasoline	Total Diesel Gallons	Total Natural Gas
2021	26,690	127,863	0
2022	16,669	55,631	0
2023	16,669	55,631	0
2024	16,797	56,059	0
2025	15,269	47,771	0
2026	10,855	23,424	0
2027	10,855	23,424	0
2028	10,855	23,424	0
2029	10,855	23,424	0
2030	10,855	23,424	0
2031	10,855	23,424	0
2032	10,855	23,424	0
2033	10,855	23,424	0
2034	10,855	23,424	0
2035	10,855	23,424	0
2036	10,855	23,424	0
2037	10,855	23,424	0
2038	10,855	23,424	0
2039	10,855	23,424	0
Total	244,063	670,889	0

Equipment Type ¹	Number of Equipment ²	Horsepower	OFFROAD2017	Fuel Type	Working days ³	Hours Per Day	Total Hours of Operation	Gasoline Gal/Hr ⁴	Total Gasoline gallons	Diesel Gal/Hr ²	Total Diesel gallons	Natural Gas Gal/Hr ²	Total Natural Gas gallons
			Horsepower Category										
2021													
Demolition													
Excavators	3	158	175	Diesel	100	8	2,400	0.00	0	2.89	6,927	0.00	0
Concrete/Industrial Saws	1	81	100	Gasoline	100	8	800	4.71	3,768	0.00	0	0.00	0
Rubber Tired Dozers	2	247	300	Diesel	100	8	1,600	0.00	0	4.47	7,145	0.00	0
Crushing/Proc. Equipment	1	85	100	Gasoline	100	8	800	7.73	6,188	0.00	0	0.00	0
Site Preparation													
Tractors/Loaders/Backhoes	4	97	100	Diesel	60	8	1,920	0.00	0	1.59	3,051	0.00	0
Rubber Tired Dozers	3	247	300	Diesel	60	8	1,440	0.00	0	4.47	6,430	0.00	0
Grading													
Excavators	2	158	175	Diesel	155	8	2,480	0.00	0	2.89	7,158	0.00	0
Rubber Tired Dozers	1	247	300	Diesel	155	8	1,240	0.00	0	4.47	5,537	0.00	0
Graders	1	187	300	Diesel	155	8	1,240	0.00	0	4.58	5,678	0.00	0
Tractors/Loaders/Backhoes	2	97	100	Diesel	155	8	2,480	0.00	0	1.59	3,940	0.00	0
Scrapers	2	367	600	Diesel	155	8	2,480	0.00	0	10.55	26,152	0.00	0
Building Construction													
Cranes	1	231	300	Diesel	261	7	1,827	0.00	0	3.29	6,009	0.00	0
Forklifts	3	89	100	Diesel	261	8	6,264	0.00	0	0.99	6,222	0.00	0
Generator Sets	1	84	100	Gasoline	261	8	2,088	5.20	10,855	0.00	0	0.00	0
Tractors/Loaders/Backhoes	3	97	100	Diesel	261	7	5,481	0.00	0	1.59	8,709	0.00	0
Welders	1	46	50	Diesel	261	8	2,088	0.00	0	1.19	2,484	0.00	0
Paving													
Pavers	2	130	175	Diesel	261	8	4,176	0.00	0	3.40	14,181	0.00	0
Rollers	2	80	100	Diesel	261	8	4,176	0.00	0	1.69	7,072	0.00	0
Paving Equipment	2	132	175	Diesel	261	8	4,176	0.00	0	2.67	11,168	0.00	0
Architectural Coating													
Air Compressors	1	78	100	Gasoline	261	6	1,566	3.75	5,878	0.00	0	0.00	0
TOTAL									26,690	127,863	0	0	0
2022													
Building Construction													
Cranes	1	231	300	Diesel	260	7	1,820	0.00	0	3.29	5,986	0.00	0
Forklifts	3	89	100	Diesel	260	8	6,240	0.00	0	0.99	6,198	0.00	0
Generator Sets	1	84	100	Gasoline	260	8	2,080	5.20	10,813	0.00	0	0.00	0
Tractors/Loaders/Backhoes	3	97	100	Diesel	260	7	5,460	0.00	0	1.59	8,675	0.00	0
Welders	1	46	50	Diesel	260	8	2,080	0.00	0	1.19	2,475	0.00	0
Paving													
Pavers	2	130	175	Diesel	260	8	4,160	0.00	0	3.40	14,127	0.00	0
Rollers	2	80	100	Diesel	260	8	4,160	0.00	0	1.69	7,045	0.00	0
Paving Equipment	2	132	175	Diesel	260	8	4,160	0.00	0	2.67	11,125	0.00	0
Architectural Coating													
Air Compressors	1	78	100	Gasoline	260	6	1,560	3.75	5,856	0.00	0	0.00	0
TOTAL									16,669	55,631	0	0	0
2023													
Building Construction													
Cranes	1	231	300	Diesel	260	7	1,820	0.00	0	3.29	5,986	0.00	0
Forklifts	3	89	100	Diesel	260	8	6,240	0.00	0	0.99	6,198	0.00	0
Generator Sets	1	84	100	Gasoline	260	8	2,080	5.20	10,813	0.00	0	0.00	0
Tractors/Loaders/Backhoes	3	97	100	Diesel	260	7	5,460	0.00	0	1.59	8,675	0.00	0
Welders	1	46	50	Diesel	260	8	2,080	0.00	0	1.19	2,475	0.00	0
Paving													
Pavers	2	130	175	Diesel	260	8	4,160	0.00	0	3.40	14,127	0.00	0
Rollers	2	80	100	Diesel	260	8	4,160	0.00	0	1.69	7,045	0.00	0
Paving Equipment	2	132	175	Diesel	260	8	4,160	0.00	0	2.67	11,125	0.00	0
Architectural Coating													
Air Compressors	1	78	100	Gasoline	260	6	1,560	3.75	5,856	0.00	0	0.00	0
TOTAL									16,669	55,631	0	0	0
2024													
Building Construction													
Cranes	1	231	300	Diesel	262	7	1,834	0.00	0	3.29	6,032	0.00	0
Forklifts	3	89	100	Diesel	262	8	6,288	0.00	0	0.99	6,246	0.00	0
Generator Sets	1	84	100	Gasoline	262	8	2,096	5.20	10,896	0.00	0	0.00	0
Tractors/Loaders/Backhoes	3	97	100	Diesel	262	7	5,502	0.00	0	1.59	8,742	0.00	0
Welders	1	46	50	Diesel	262	8	2,096	0.00	0	1.19	2,494	0.00	0
Paving													
Pavers	2	130	175	Diesel	262	8	4,192	0.00	0	3.40	14,235	0.00	0
Rollers	2	80	100	Diesel	262	8	4,192	0.00	0	1.69	7,099	0.00	0
Paving Equipment	2	132	175	Diesel	262	8	4,192	0.00	0	2.67	11,211	0.00	0
Architectural Coating													
Air Compressors	1	78	100	Gasoline	262	6	1,572	3.75	5,901	0.00	0	0.00	0
TOTAL									16,797	56,059	0	0	0
2025													
Building Construction													
Cranes	1	231	300	Diesel	261	7	1,827	0.00	0	3.29	6,009	0.00	0
Forklifts	3	89	100	Diesel	261	8	6,264	0.00	0	0.99	6,222	0.00	0
Generator Sets	1	84	100	Gasoline	261	8	2,088	5.20	10,855	0.00	0	0.00	0
Tractors/Loaders/Backhoes	3	97	100	Diesel	261	7	5,481	0.00	0	1.59	8,709	0.00	0
Welders	1	46	50	Diesel	261	8	2,088	0.00	0	1.19	2,484	0.00	0
Paving													
Pavers	2	130	175	Diesel	196	8	3,136	0.00	0	3.40	10,649	0.00	0
Rollers	2	80	100	Diesel	196	8	3,136	0.00	0	1.69	5,311	0.00	0
Paving Equipment	2	132	175	Diesel	196	8	3,136	0.00	0	2.67	8,387	0.00	0
Architectural Coating													
Air Compressors	1	78	100	Gasoline	196	6	1,176	3.75	4,414	0.00	0	0.00	0
TOTAL									15,269	47,771	0	0	0
2026													
Building Construction													
Cranes	1	231	300	Diesel	261	7	1,827	0.00	0	3.29	6,009	0.00	0
Forklifts	3	89	100	Diesel	261	8	6,264	0.00	0	0.99	6,222	0.00	0
Generator Sets	1	84	100	Gasoline	261	8	2,088	5.20	10,855	0.00	0	0.00	0
Tractors/Loaders/Backhoes	3	97	100	Diesel	261	7	5,481	0.00	0	1.59	8,709	0.00	0
Welders	1	46	50	Diesel	261	8	2,088	0.00	0	1.19	2,484	0.00	0
TOTAL									10,855	23,424	0	0	0

Drage [DC]	2023 Agricultural - Combine Harvesters	Aggregated	300	Dowd	0.00021844	0.00018935	0.00013992	0.00014533	0.00014939	0.00028443	0.00017505	0.183175	0.478875	0.183175	0.248977	0.248977	0.22277098	11451071	12648612		
Drage [DC]	2023 Agricultural - Combine Harvesters	Aggregated	600	Dowd	1.821626	1.644403	1.182026	1.210775	1.220775	2.400000	1.821626	1.821626	1.821626	1.821626	1.821626	1.821626	1.821626	1.821626	1.821626	1.821626	1.821626
Drage [DC]	2023 Agricultural - Construction Equipment	Aggregated	50	Dowd	0.00010907	0.00020486	0.00024317	0.00018787	0.00018787	0.00018787	0.00018787	0.00018787	0.00018787	0.00018787	0.00018787	0.00018787	0.00018787	0.00018787	0.00018787	0.00018787	0.00018787
Drage [DC]	2023 Agricultural - Construction Equipment	Aggregated	100	Dowd	0.00021814	0.00040972	0.00048634	0.00037574	0.00037574	0.00037574	0.00037574	0.00037574	0.00037574	0.00037574	0.00037574	0.00037574	0.00037574	0.00037574	0.00037574	0.00037574	0.00037574
Drage [DC]	2023 Agricultural - Construction Equipment	Aggregated	150	Dowd	0.00032716	0.00061458	0.00072951	0.00056361	0.00056361	0.00056361	0.00056361	0.00056361	0.00056361	0.00056361	0.00056361	0.00056361	0.00056361	0.00056361	0.00056361	0.00056361	0.00056361
Drage [DC]	2023 Agricultural - Construction Equipment	Aggregated	200	Dowd	0.00043618	0.00082076	0.00098634	0.00075151	0.00075151	0.00075151	0.00075151	0.00075151	0.00075151	0.00075151	0.00075151	0.00075151	0.00075151	0.00075151	0.00075151	0.00075151	0.00075151
Drage [DC]	2023 Agricultural - Construction Equipment	Aggregated	250	Dowd	0.00054520	0.00102694	0.00123312	0.00093769	0.00093769	0.00093769	0.00093769	0.00093769	0.00093769	0.00093769	0.00093769	0.00093769	0.00093769	0.00093769	0.00093769	0.00093769	0.00093769
Drage [DC]	2023 Agricultural - Cotton Pickers	Aggregated	100	Dowd	2.887055	3.496502	4.105132	3.412026	3.412026	3.412026	3.412026	3.412026	3.412026	3.412026	3.412026	3.412026	3.412026	3.412026	3.412026	3.412026	3.412026
Drage [DC]	2023 Agricultural - Cotton Pickers	Aggregated	150	Dowd	4.330582	5.244753	6.158978	5.118039	5.118039	5.118039	5.118039	5.118039	5.118039	5.118039	5.118039	5.118039	5.118039	5.118039	5.118039	5.118039	5.118039
Drage [DC]	2023 Agricultural - Cotton Pickers	Aggregated	200	Dowd	5.773109	6.967129	8.360149	6.876058	6.876058	6.876058	6.876058	6.876058	6.876058	6.876058	6.876058	6.876058	6.876058	6.876058	6.876058	6.876058	6.876058
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	100	Dowd	7.646547	9.148187	1.088242	4.503242	4.503242	4.503242	4.503242	4.503242	4.503242	4.503242	4.503242	4.503242	4.503242	4.503242	4.503242	4.503242	4.503242
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	150	Dowd	11.469825	13.737317	1.621542	6.760238	6.760238	6.760238	6.760238	6.760238	6.760238	6.760238	6.760238	6.760238	6.760238	6.760238	6.760238	6.760238	6.760238
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	200	Dowd	15.293103	18.105712	2.144742	8.949034	8.949034	8.949034	8.949034	8.949034	8.949034	8.949034	8.949034	8.949034	8.949034	8.949034	8.949034	8.949034	8.949034
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	250	Dowd	19.116381	22.538415	2.667246	11.138126	11.138126	11.138126	11.138126	11.138126	11.138126	11.138126	11.138126	11.138126	11.138126	11.138126	11.138126	11.138126	11.138126
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	300	Dowd	22.939659	27.358448	3.190050	13.331511	13.331511	13.331511	13.331511	13.331511	13.331511	13.331511	13.331511	13.331511	13.331511	13.331511	13.331511	13.331511	13.331511
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	350	Dowd	26.762937	31.577242	3.712754	15.524906	15.524906	15.524906	15.524906	15.524906	15.524906	15.524906	15.524906	15.524906	15.524906	15.524906	15.524906	15.524906	15.524906
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	400	Dowd	30.586215	35.792047	4.235458	17.718301	17.718301	17.718301	17.718301	17.718301	17.718301	17.718301	17.718301	17.718301	17.718301	17.718301	17.718301	17.718301	17.718301
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	450	Dowd	34.409493	40.007292	4.758162	19.911696	19.911696	19.911696	19.911696	19.911696	19.911696	19.911696	19.911696	19.911696	19.911696	19.911696	19.911696	19.911696	19.911696
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	500	Dowd	38.232771	44.121533	5.280866	22.105091	22.105091	22.105091	22.105091	22.105091	22.105091	22.105091	22.105091	22.105091	22.105091	22.105091	22.105091	22.105091	22.105091
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	550	Dowd	42.056049	48.235370	5.803570	24.298486	24.298486	24.298486	24.298486	24.298486	24.298486	24.298486	24.298486	24.298486	24.298486	24.298486	24.298486	24.298486	24.298486
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	600	Dowd	45.879327	52.349211	6.326274	26.491881	26.491881	26.491881	26.491881	26.491881	26.491881	26.491881	26.491881	26.491881	26.491881	26.491881	26.491881	26.491881	26.491881
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	650	Dowd	49.702605	56.463046	6.848978	28.685276	28.685276	28.685276	28.685276	28.685276	28.685276	28.685276	28.685276	28.685276	28.685276	28.685276	28.685276	28.685276	28.685276
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	700	Dowd	53.525883	60.576881	7.371682	30.878671	30.878671	30.878671	30.878671	30.878671	30.878671	30.878671	30.878671	30.878671	30.878671	30.878671	30.878671	30.878671	30.878671
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	750	Dowd	57.349161	64.690716	7.894386	33.072066	33.072066	33.072066	33.072066	33.072066	33.072066	33.072066	33.072066	33.072066	33.072066	33.072066	33.072066	33.072066	33.072066
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	800	Dowd	61.172439	68.804551	8.417090	35.265461	35.265461	35.265461	35.265461	35.265461	35.265461	35.265461	35.265461	35.265461	35.265461	35.265461	35.265461	35.265461	35.265461
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	850	Dowd	64.995717	72.918386	8.939794	37.458856	37.458856	37.458856	37.458856	37.458856	37.458856	37.458856	37.458856	37.458856	37.458856	37.458856	37.458856	37.458856	37.458856
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	900	Dowd	68.818995	77.032221	9.462500	39.652251	39.652251	39.652251	39.652251	39.652251	39.652251	39.652251	39.652251	39.652251	39.652251	39.652251	39.652251	39.652251	39.652251
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	950	Dowd	72.642273	81.146056	9.985204	41.845646	41.845646	41.845646	41.845646	41.845646	41.845646	41.845646	41.845646	41.845646	41.845646	41.845646	41.845646	41.845646	41.845646
Drage [DC]	2023 Agricultural - Forage & Silage Harvesters	Aggregated	1000	Dowd	76.465551	85.259891	10.507908	44.039041	44.039041	44.039041	44.039041	44.039041	44.039041	44.039041	44.039041	44.039041	44.039041	44.039041	44.039041	44.039041	44.039041
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	70	Dowd	1.116607	0.809592	0.477402	0.849746	0.849746	0.849746	0.849746	0.849746	0.849746	0.849746	0.849746	0.849746	0.849746	0.849746	0.849746	0.849746	0.849746
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	120	Dowd	1.761373	1.215333	0.796202	1.414512	1.414512	1.414512	1.414512	1.414512	1.414512	1.414512	1.414512	1.414512	1.414512	1.414512	1.414512	1.414512	1.414512
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	170	Dowd	2.406139	1.715153	1.272958	2.019681	2.019681	2.019681	2.019681	2.019681	2.019681	2.019681	2.019681	2.019681	2.019681	2.019681	2.019681	2.019681	2.019681
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	220	Dowd	3.050905	2.254963	1.644403	2.624906	2.624906	2.624906	2.624906	2.624906	2.624906	2.624906	2.624906	2.624906	2.624906	2.624906	2.624906	2.624906	2.624906
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	270	Dowd	3.695671	2.819021	2.038908	3.214849	3.214849	3.214849	3.214849	3.214849	3.214849	3.214849	3.214849	3.214849	3.214849	3.214849	3.214849	3.214849	3.214849
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	320	Dowd	4.340437	3.423080	2.433410	3.790792	3.790792	3.790792	3.790792	3.790792	3.790792	3.790792	3.790792	3.790792	3.790792	3.790792	3.790792	3.790792	3.790792
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	370	Dowd	4.985203	4.017140	2.827911	4.166704	4.166704	4.166704	4.166704	4.166704	4.166704	4.166704	4.166704	4.166704	4.166704	4.166704	4.166704	4.166704	4.166704
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	420	Dowd	5.629969	4.641180	3.222322	4.546607	4.546607	4.546607	4.546607	4.546607	4.546607	4.546607	4.546607	4.546607	4.546607	4.546607	4.546607	4.546607	4.546607
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	470	Dowd	6.274735	5.255220	3.616833	4.926510	4.926510	4.926510	4.926510	4.926510	4.926510	4.926510	4.926510	4.926510	4.926510	4.926510	4.926510	4.926510	4.926510
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	520	Dowd	6.919501	5.864260	4.011359	5.306413	5.306413	5.306413	5.306413	5.306413	5.306413	5.306413	5.306413	5.306413	5.306413	5.306413	5.306413	5.306413	5.306413
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	570	Dowd	7.564267	6.473300	4.405885	5.686316	5.686316	5.686316	5.686316	5.686316	5.686316	5.686316	5.686316	5.686316	5.686316	5.686316	5.686316	5.686316	5.686316
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	620	Dowd	8.209033	7.082340	4.791411	6.066419	6.066419	6.066419	6.066419	6.066419	6.066419	6.066419	6.066419	6.066419	6.066419	6.066419	6.066419	6.066419	6.066419
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	670	Dowd	8.853799	7.691380	5.176937	6.446522	6.446522	6.446522	6.446522	6.446522	6.446522	6.446522	6.446522	6.446522	6.446522	6.446522	6.446522	6.446522	6.446522
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	720	Dowd	9.498565	8.300420	5.562463	6.826625	6.826625	6.826625	6.826625	6.826625	6.826625	6.826625	6.826625	6.826625	6.826625	6.826625	6.826625	6.826625	6.826625
Drage [DC]	2023 Agricultural - Hay Spreader/Tea/Seeder	Aggregated	770	Dowd	10.143331	8.909460	5.947989														

EXISTING CONDITIONS			
Vehicle type	Fleet percent		VMT
	Regional Shopping	Center	
LDA	55.60%	32,502,332	32,502,332
LDT1	4.38%	2,563,389	2,563,389
LDT2	21.04%	12,297,755	12,297,755
MDV	11.64%	6,803,551	6,803,551
LHD1	1.68%	980,095	980,095
LHD2	0.58%	338,780	338,780
MHD	2.50%	1,461,988	1,461,988
MHD	1.62%	944,726	944,726
OBUS	0.17%	98,039	98,039
UBUS	0.16%	92,719	92,719
MCY	0.49%	284,529	284,529
SBUS	0.06%	34,258	34,258
MH	0.10%	58,578	58,578
	100.0%	58,460,796	58,460,796

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	23,900.00	27,204.00	8,672.00	58,460,796	58,460,796
Total	23,900.00	27,204.00	8,672.00	58,460,796	58,460,796

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	MHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.555868	0.043848	0.210358	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000588	0.00100
Other Non-Asphalt Surfaces	0.555868	0.043848	0.210358	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000588	0.00100
Parking Lot	0.555868	0.043848	0.210358	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000588	0.00100
Regional Shopping Center	0.555868	0.043848	0.210358	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000588	0.00100

EXISTING CONDITIONS				
Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent
LDA	97.46%	0.90%	0.00%	1.64%
LDT1	99.61%	0.02%	0.00%	0.37%
LDT2	98.87%	0.63%	0.00%	0.50%
MDV	97.61%	2.17%	0.00%	0.22%
LHD1	60.43%	39.57%	0.00%	0.00%
LHD2	40.22%	59.78%	0.00%	0.00%
MHD	19.10%	80.90%	0.00%	0.00%
MHD	0.08%	97.21%	2.71%	0.00%
OBUS	49.72%	50.28%	0.00%	0.00%
UBUS	18.82%	0.00%	81.18%	0.00%
MCY	100.00%	0.00%	0.00%	0.00%
SBUS	32.93%	67.07%	0.00%	0.00%
MH	69.88%	30.12%	0.00%	0.00%

<< Equal to T6 (<https://www.arb.ca.gov/mse/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf>)
 << Motor coach, all other buses, and OBUS (<https://www.arb.ca.gov/mse/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf>)

EXISTING CONDITIONS												
Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	31,676,729	30.12	1,051,572	291,914	47.42	6,156	0	0.00	0	533,689	2.99	178,333
LDT1	2,533,326	25.90	98,229	557	24.32	23	0	0.00	0	9,505	2.99	3,176
LDT2	12,158,333	23.60	515,132	77,902	34.32	2,270	0	0.00	0	61,520	2.99	20,557
MDV	6,841,073	19.21	345,747	147,326	26.02	5,662	0	0.00	0	15,150	2.99	5,062
LHD1	592,288	10.48	56,510	387,807	21.02	18,453	0	0.00	0	0	2.99	0
LHD2	136,269	9.11	14,957	202,511	18.96	10,678	0	0.00	0	0	2.99	0
MHD	279,173	5.02	55,579	1,182,815	10.39	114,816	0	0.00	0	0	2.99	0
MHD	743	4.12	180	918,359	6.47	141,957	25,625	2.19	11,687	0	2.99	0
OBUS	48,746	5.00	9,746	49,293	8.58	5,745	0	0.00	0	0	2.99	0
UBUS	17,448	3.68	4,747	0	0.00	0	75,271	3.97	18,963	0	2.99	0
MCY	284,529	37.21	7,646	0	0.00	0	0	0.00	0	0	2.99	0
SBUS	11,263	9.01	1,252	22,976	7.33	3,135	0	0.00	0	0	2.99	0
MH	40,936	5.07	8,079	17,641	10.28	1,716	0	0.00	0	0	2.99	0
	54,440,876		2,169,376	3,299,101		310,610	100,896		30,650	619,864		207,128

EXISTING CONDITIONS

Vehicle type	Fleet percent		VMT
	Regional Shopping	Center	
	Center	Total	
LDA	56.89%	33,258,815	33,258,815
LDT1	4.23%	2,469,969	2,469,969
LDT2	20.83%	12,176,858	12,176,858
MDV	10.24%	5,988,315	5,988,315
LHD1	1.21%	706,148	706,148
LHD2	0.58%	340,593	340,593
MHD	2.84%	1,658,065	1,658,065
HHH	2.20%	1,287,774	1,287,774
OBUS	0.20%	115,051	115,051
UBUS	0.14%	83,482	83,482
MCY	0.50%	294,175	294,175
SBUS	0.07%	38,292	38,292
MH	0.07%	43,319	43,319
	100.0%	58,460,796	58,460,796

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unimpaired Annual VMT	Impaired Annual VMT
	Weekday	Saturday	Sunday		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	23,950.00	23,204.00	6,872.00	58,460,796	58,460,796
Total	23,950.00	23,204.00	6,872.00		

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHH	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.568906	0.042250	0.208291	0.102433	0.012079	0.005828	0.025302	0.022028	0.001968	0.001428	0.005032	0.000655	0.000974
Other Non-Asphalt Surfaces	0.568906	0.042250	0.208291	0.102433	0.012079	0.005828	0.025302	0.022028	0.001968	0.001428	0.005032	0.000655	0.000974
Parking Lot	0.568906	0.042250	0.208291	0.102433	0.012079	0.005828	0.025302	0.022028	0.001968	0.001428	0.005032	0.000655	0.000974
Regional Shopping Center	0.568906	0.042250	0.208291	0.102433	0.012079	0.005828	0.025302	0.022028	0.001968	0.001428	0.005032	0.000655	0.000974

EXISTING CONDITIONS

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent
LDA	92.68%	1.15%	0.00%	6.17%
LDT1	96.25%	0.01%	0.00%	3.73%
LDT2	95.94%	0.98%	0.00%	3.07%
MDV	93.20%	3.34%	0.00%	3.46%
LHD1	46.89%	53.11%	0.00%	0.00%
LHD2	28.53%	71.47%	0.00%	0.00%
MHD	9.45%	90.55%	0.00%	0.00%
HHH	0.13%	99.87%	4.00%	0.00%
OBUS	41.28%	58.72%	0.00%	0.00%
UBUS	18.82%	0.00%	81.18%	0.00%
MCY	100.00%	0.00%	0.00%	0.00%
SBUS	46.87%	53.13%	0.00%	0.00%
MH	68.49%	31.51%	0.00%	0.00%

<< Equal to T6 (<https://www.arb.ca.gov/mse/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf>)
 << Motor coach, all other buses, and OBUS (<https://www.arb.ca.gov/mse/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf>)

EXISTING CONDITIONS

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	30,824,445	42.48	725,651	382,759	64.83	5,904	0	0.00	0	2,051,611	3.55	577,950
LDT1	2,377,409	36.23	65,624	322	34.03	9	0	0.00	0	92,238	3.55	25,984
LDT2	11,682,856	36.67	318,569	119,779	48.61	2,464	0	0.00	0	374,222	3.55	105,420
MDV	5,581,128	29.97	186,228	200,048	37.34	5,358	0	0.00	0	207,139	3.55	58,352
LHD1	331,099	12.94	25,586	375,049	26.41	14,199	0	0.00	0	0	0	3.55
LHD2	97,157	11.22	8,661	243,436	23.78	10,245	0	0.00	0	0	0	3.55
MHD	156,879	6.32	24,797	1,501,386	13.58	107,409	0	0.00	0	0	0	3.55
HHH	1,670	5.56	300	1,234,546	9.74	126,689	51,559	2.85	18,061	0	0	3.55
OBUS	47,496	6.39	7,437	67,555	11.35	5,954	0	0.00	0	0	0	3.55
UBUS	15,710	4.98	3,155	0	0.00	0	67,772	3.86	17,546	0	0	3.55
MCY	294,175	36.74	8,007	0	0.00	0	0	0.00	0	0	0	3.55
SBUS	17,946	10.72	1,674	30,345	10.07	2,021	0	0.00	0	0	0	3.55
MH	29,669	6.44	4,607	13,650	12.55	1,088	0	0.00	0	0	0	3.55
	51,457,440		1,380,296	4,158,875		281,339	119,331	35,607	2,725,209			767,706

Proposed Facilities

PROPOSED CONDITIONS													
Vehicle type	Fleet percent						VMT						
	Apartments High Rise	Apartments Mid Rise	Condo/Townhouse	Office	Hotel	Regional Shopping Center	Apartments High Rise	Apartments Mid Rise	Condo/Townhouse	Office	Hotel	Regional Shopping Center	Total
LDA	56.89%	56.89%	56.89%	56.89%	56.89%	56.89%	8,200,023	6,560,018	1,640,005	1,395,466	4,048,832	40,412,977	62,257,321
LDT1	4.23%	4.23%	4.23%	4.23%	4.23%	4.23%	608,975	487,180	121,795	103,634	300,687	3,001,273	4,633,545
LDT2	20.83%	20.83%	20.83%	20.83%	20.83%	20.83%	3,002,227	2,401,782	600,445	510,914	1,482,376	14,796,170	22,793,913
MDV	10.24%	10.24%	10.24%	10.24%	10.24%	10.24%	1,476,430	1,181,144	295,286	251,256	729,000	7,276,436	11,209,553
LHD1	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%	174,102	139,282	34,820	29,628	85,964	858,044	1,321,841
LHD2	0.58%	0.58%	0.58%	0.58%	0.58%	0.58%	83,974	67,179	16,795	14,291	41,463	413,856	637,557
MHD	2.84%	2.84%	2.84%	2.84%	2.84%	2.84%	408,799	327,039	81,760	69,569	201,848	2,014,724	3,103,739
HHO	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	317,503	254,003	63,501	54,032	155,770	1,564,782	2,410,591
OBUS	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	28,366	22,693	5,673	4,827	14,006	139,799	215,364
UBUS	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	20,583	16,466	4,117	3,503	10,163	101,439	156,270
MCY	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	72,529	58,023	14,506	12,343	35,812	357,453	550,667
SBUS	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%	9,441	7,553	1,888	1,607	4,662	46,529	71,679
MH	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	14,413,619	11,530,895	2,982,724	2,452,885	7,116,849	71,036,050	109,433,021

PROPOSED CONDITIONS				
Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent
LDA	92.68%	1.15%	0.00%	6.17%
LDT1	96.25%	0.01%	0.00%	3.73%
LDT2	95.94%	0.98%	0.00%	3.07%
MDV	93.20%	3.34%	0.00%	3.46%
LHD1	46.89%	53.11%	0.00%	0.00%
LHD2	28.53%	71.47%	0.00%	0.00%
MHD	9.45%	90.55%	0.00%	0.00%
HHO	0.13%	95.87%	4.00%	0.00%
OBUS	41.28%	58.72%	0.00%	0.00%
UBUS	18.82%	0.00%	81.18%	0.00%
MCY	100.00%	0.00%	0.00%	0.00%
SBUS	46.87%	53.13%	0.00%	0.00%
MH	68.49%	31.51%	0.00%	0.00%

<< Equal to T6
(<https://www.arb.ca.gov/mse/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf>)

<< Equal to T7
(<https://www.arb.ca.gov/mse/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf>)

<< Motor coach, all other buses, and OBUS
(<https://www.arb.ca.gov/mse/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf>)

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unimproved Annual VMT	Improved Annual VMT
	Weekday	Saturday	Sunday		
Apartments High Rise	1,627.76	619.14	1,058.00	14,413,619	14,413,619
Apartments Mid Rise	1,457.41	4,920.71	4318.04	11,530,895	11,530,895
Condo/Townhouse	1,994.35	1,231.43	1078.76	2,982,724	2,982,724
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00
General Office Building	1,466.51	332.73	110.88	2,452,885	2,452,885
Hotel	2,870.31	4,359.74	3308.08	7,116,849	7,116,849
Parking Lot	0.00	0.00	0.00	0.00	0.00
Regional Shopping Center	36,431.14	19,327.11	3871.18	71,036,050	71,036,050
Total	15,449,448	56,313,626	17,872,774	109,433,021	109,433,021

4.4 Fleet Mix

Land Use	LD1	LD2	LD3	MDV	HD1	HD2	MH	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.000000	0.042256	0.200291	0.102431	0.120778	0.200628	0.320362	0.022020	0.011940	0.014248	0.000000	0.000000
Apartments Mid Rise	0.000000	0.042256	0.200291	0.102431	0.120778	0.200628	0.320362	0.022020	0.011940	0.014248	0.000000	0.000000
Condo/Townhouse	0.000000	0.042256	0.200291	0.102431	0.120778	0.200628	0.320362	0.022020	0.011940	0.014248	0.000000	0.000000
Enclosed Parking with Elevator	0.000000	0.042256	0.200291	0.102431	0.120778	0.200628	0.320362	0.022020	0.011940	0.014248	0.000000	0.000000
General Office Building	0.000000	0.042256	0.200291	0.102431	0.120778	0.200628	0.320362	0.022020	0.011940	0.014248	0.000000	0.000000
Hotel	0.000000	0.042256	0.200291	0.102431	0.120778	0.200628	0.320362	0.022020	0.011940	0.014248	0.000000	0.000000
Parking Lot	0.000000	0.042256	0.200291	0.102431	0.120778	0.200628	0.320362	0.022020	0.011940	0.014248	0.000000	0.000000
Regional Shopping Center	0.000000	0.042256	0.200291	0.102431	0.120778	0.200628	0.320362	0.022020	0.011940	0.014248	0.000000	0.000000

PROPOSED CONDITIONS												
Vehicle type	VMT	Gasoline		Diesel		CNG		Electricity		kWh	m/kWh	kWh
		mpg	Gallons	mpg	Gallons	mpg	Gallons	VMT	kWh			
LDA	57,700,413	42.49	1,358,349	716,489	64.83	11,052	0	0.00	0	3,840,419	3.04	1,262,829
LDT1	4,450,282	36.23	122,841	603	34.03	18	0	0.00	0	172,660	3.04	56,775
LDT2	21,869,190	36.67	596,330	224,216	48.61	4,612	0	0.00	0	700,507	3.04	230,345
MDV	10,447,338	29.97	348,601	374,470	37.34	10,029	0	0.00	0	387,744	3.04	127,500
LHD1	619,786	12.94	47,894	702,055	26.41	26,578	0	0.00	0	0	0	0
LHD2	181,869	11.22	16,213	455,688	23.76	19,177	0	0.00	0	0	0	0
MHD	293,289	6.32	46,417	2,810,451	13.98	201,059	0	0.00	0	0	0	0
HHO	3,125	5.56	562	2,310,953	9.74	237,150	96,513	0.00	0	2,85	33,809	0
OBUS	88,909	6.39	13,921	126,456	11.35	11,145	0	0.00	0	0	0	0
UBUS	29,407	4.98	5,907	0	0.00	0	126,864	3.86	32,844	0	0	0
MCY	550,667	36.74	14,988	0	0.00	0	0	0.00	0	0	0	0
SBUS	33,594	10.72	3,134	38,085	10.07	3,783	0	0.00	0	0	0	0
MH	55,538	6.44	8,625	25,552	12.55	2,036	0	0.00	0	0	0	0
Total	96,323,407		2,583,782	7,785,016		526,640	223,376		66,653	5,101,331		1,677,447

EMFAC Fuel Usage: Year 2020

Vehicle type	Gasoline			Diesel			Natural Gas			Electricity
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day
All other buses	0	0	0.00	28,077	2,814	9.98	0	0	0.00	0
LDA	48,945,590	1,624,846	30.12	451,053	9,512	47.42	0	0	0.00	824,635
LDT1	5,047,196	194,171	25.99	1,102	45	24.32	0	0	0.00	18,789
LDT2	17,039,204	721,928	23.60	109,175	3,181	34.32	0	0	0.00	86,216
LHD1	1,383,121	131,963	10.48	905,613	43,091	21.02	0	0	0.00	0
LHD2	231,594	25,421	9.11	344,174	18,148	18.96	0	0	0.00	0
MCY	407,847	10,960	37.21	0	0	0.00	0	0	0.00	0
MDV	11,413,222	594,194	19.21	253,192	9,730	26.02	0	0	0.00	26,036
MH	66,295	13,083	5.07	28,570	2,779	10.28	0	0	0.00	0
Motor coach	0	0	0.00	17,428	2,753	6.33	0	0	0.00	0
OBUS	45,000	8,997	5.00	0	0	0.00	0	0	0.00	0
PTO	0	0	0.00	31,007	6,384	4.86	0	0	0.00	0
SBUS	20,408	2,265	9.01	41,562	5,670	7.33	0	0	0.00	0
T6	418,644	83,345	5.02	1,773,731	172,176	10.30	0	0	0.00	0
T7	941	228	4.12	1,163,222	179,808	6.47	32,457	14,803	2.19	0
UBUS	19,817	5,391	3.68	0	0	0.00	85,493	21,539	3.97	0
Total	85,038,879	3,416,793	24.89	5,147,905	456,091	11.29	117,950	36,342	3.25	955,677

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: ORANGE

Calendar Year: 2020

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
ORANGE	2020	All Other Buses	Aggregated	Aggregated	DSL	481.2016837	28077.19843	4042.094143	2.814388095
ORANGE	2020	LDA	Aggregated	Aggregated	GAS	1247860.077	48945590.41	5912594.532	1624.845919
ORANGE	2020	LDA	Aggregated	Aggregated	DSL	11164.90346	451052.9772	53022.62326	9.512191554
ORANGE	2020	LDA	Aggregated	Aggregated	ELEC	21148.18246	824635.0752	105742.2469	0
ORANGE	2020	LDT1	Aggregated	Aggregated	GAS	134019.271	5047196.379	619698.5138	194.1712644
ORANGE	2020	LDT1	Aggregated	Aggregated	DSL	55.81897815	1101.830055	186.0090014	0.045307405
ORANGE	2020	LDT1	Aggregated	Aggregated	ELEC	490.3524677	18789.48359	2431.492246	0
ORANGE	2020	LDT2	Aggregated	Aggregated	GAS	447357.5819	17039204.03	2097730.136	721.9280003
ORANGE	2020	LDT2	Aggregated	Aggregated	DSL	2427.17569	109175.1539	12027.12038	3.181091028
ORANGE	2020	LDT2	Aggregated	Aggregated	ELEC	2543.998796	86216.46483	12903.12737	0
ORANGE	2020	LHD1	Aggregated	Aggregated	GAS	36819.26046	1383120.831	548552.1202	131.9632743
ORANGE	2020	LHD1	Aggregated	Aggregated	DSL	21629.92474	905612.7101	272077.2427	43.09068986
ORANGE	2020	LHD2	Aggregated	Aggregated	GAS	6427.4198	231594.4301	95758.97816	25.42072092
ORANGE	2020	LHD2	Aggregated	Aggregated	DSL	8343.636776	344174.0824	104952.4543	18.14803591
ORANGE	2020	MCY	Aggregated	Aggregated	GAS	55868.87126	407847.0245	111737.7425	10.9596883
ORANGE	2020	MDV	Aggregated	Aggregated	GAS	312579.7151	11413222.04	1449101.786	594.1942936
ORANGE	2020	MDV	Aggregated	Aggregated	DSL	6028.951683	253191.7258	29628.60119	9.730157513
ORANGE	2020	MDV	Aggregated	Aggregated	ELEC	735.8961127	26036.03016	3783.732455	0
ORANGE	2020	MH	Aggregated	Aggregated	GAS	7043.392017	66294.96462	704.6209374	13.08327083
ORANGE	2020	MH	Aggregated	Aggregated	DSL	2901.594303	28569.64554	290.1594303	2.778662443
ORANGE	2020	Motor Coach	Aggregated	Aggregated	DSL	136.4898537	17428.42872	1992.751864	2.752736362
ORANGE	2020	OBUS	Aggregated	Aggregated	GAS	995.681945	45000.03288	19921.60436	8.996982408
ORANGE	2020	PTO	Aggregated	Aggregated	DSL	0	31006.68851	0	6.383529602
ORANGE	2020	SBUS	Aggregated	Aggregated	GAS	477.5371807	20407.65759	1910.148773	2.264752129
ORANGE	2020	SBUS	Aggregated	Aggregated	DSL	1330.411773	41561.69254	15352.76741	5.670310587
ORANGE	2020	T6 Ag	Aggregated	Aggregated	DSL	1.07	8.275469859	4.708	0.001066262
ORANGE	2020	T6 CAIRP heavy	Aggregated	Aggregated	DSL	88.66874812	17668.64125	1294.563723	1.577008329
ORANGE	2020	T6 CAIRP small	Aggregated	Aggregated	DSL	45.34272879	2389.999147	662.0038403	0.226832642
ORANGE	2020	T6 instate construction heavy	Aggregated	Aggregated	DSL	396.2486598	26940.21685	1791.424785	2.743247107
ORANGE	2020	T6 instate construction small	Aggregated	Aggregated	DSL	2797.82418	142828.4512	12648.85434	14.31071495
ORANGE	2020	T6 instate heavy	Aggregated	Aggregated	DSL	4232.18802	597325.6124	48838.86298	55.593513
ORANGE	2020	T6 instate small	Aggregated	Aggregated	DSL	18616.48143	955904.6099	214831.6146	94.35518326
ORANGE	2020	T6 OOS heavy	Aggregated	Aggregated	DSL	50.42051047	10072.46003	736.1394529	0.898555975
ORANGE	2020	T6 OOS small	Aggregated	Aggregated	DSL	26.8094145	1405.945609	391.4174517	0.133395337
ORANGE	2020	T6 Public	Aggregated	Aggregated	DSL	896.5189033	13585.52472	2719.440671	1.739272559
ORANGE	2020	T6 utility	Aggregated	Aggregated	DSL	335.5972108	5601.520977	3859.367924	0.597456493
ORANGE	2020	T6T5	Aggregated	Aggregated	GAS	7554.979106	418643.6762	151160.022	83.34527002
ORANGE	2020	T7 Ag	Aggregated	Aggregated	DSL	1	8.027370796	4.4	0.001553111
ORANGE	2020	T7 CAIRP	Aggregated	Aggregated	DSL	936.2960241	169499.5167	13669.92195	24.91503552
ORANGE	2020	T7 CAIRP construction	Aggregated	Aggregated	DSL	105.2121264	19351.39179	475.659933	2.689514666
ORANGE	2020	T7 NNOOS	Aggregated	Aggregated	DSL	1023.780474	206641.313	14947.19492	29.39860655
ORANGE	2020	T7 NOOS	Aggregated	Aggregated	DSL	368.0303383	66594.15025	5373.242939	10.02337714
ORANGE	2020	T7 POLA	Aggregated	Aggregated	DSL	1274.10332	155914.1289	9683.185233	25.79021242
ORANGE	2020	T7 Public	Aggregated	Aggregated	DSL	1031.473951	20897.43447	3128.804315	3.707980098
ORANGE	2020	T7 Single	Aggregated	Aggregated	DSL	2158.378481	156155.881	24907.38842	23.85165432
ORANGE	2020	T7 single construction	Aggregated	Aggregated	DSL	680.6801442	48007.24372	3077.328467	7.411667011
ORANGE	2020	T7 SWCV	Aggregated	Aggregated	DSL	366.6327907	14980.0218	1429.867884	7.333542571
ORANGE	2020	T7 SWCV	Aggregated	Aggregated	NG	797.4174081	32457.1177	3109.927892	14.80335493
ORANGE	2020	T7 tractor	Aggregated	Aggregated	DSL	1919.762893	264239.798	24380.98875	38.33414036
ORANGE	2020	T7 tractor construction	Aggregated	Aggregated	DSL	563.5221687	39601.74947	2547.661815	6.132328946
ORANGE	2020	T7 utility	Aggregated	Aggregated	DSL	65.59670634	1331.254316	754.3621229	0.218093255
ORANGE	2020	T7IS	Aggregated	Aggregated	GAS	10.17819751	940.518702	203.6453757	0.228390326
ORANGE	2020	UBUS	Aggregated	Aggregated	GAS	209.7645784	19817.2437	839.0583135	5.391173952
ORANGE	2020	UBUS	Aggregated	Aggregated	DSL	0	0	0	0
ORANGE	2020	UBUS	Aggregated	Aggregated	NG	738.1509692	85493.1979	2952.603877	21.53856767

EMFAC Fuel Usage: Year 2021

Vehicle type	Gasoline			Diesel			Natural Gas			Electricity VMT/day
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	
All other buses	0	0	0.00	40,268	3,105	12.97	0	0	0.00	0
LDA	52,652,247	1,239,508	42.48	653,803	10,085	64.83	0	0	0.00	3,504,424
LDT1	6,110,029	168,655	36.23	827	24	34.03	0	0	0.00	237,054
LDT2	17,096,889	466,199	36.67	175,287	3,606	48.61	0	0	0.00	547,642
LHD1	1,167,778	90,241	12.94	1,322,787	50,078	26.41	0	0	0.00	0
LHD2	206,607	18,418	11.22	517,672	21,786	23.76	0	0	0.00	0
MCY	478,890	13,034	36.74	0	0	0.00	0	0	0.00	0
MDV	10,660,563	355,716	29.97	382,113	10,233	37.34	0	0	0.00	395,658
MH	63,292	9,829	6.44	29,120	2,320	12.55	0	0	0.00	0
Motor coach	0	0	0.00	22,763	2,685	8.48	0	0	0.00	0
OBUS	44,315	6,939	6.39	0	0	0.00	0	0	0.00	0
PTO	0	0	0.00	46,382	7,230	6.42	0	0	0.00	0
SBUS	34,439	3,213	10.72	39,043	3,878	10.07	0	0	0.00	0
T6	246,613	39,030	6.32	2,363,181	169,062	13.98	0	0	0.00	0
T7	2,175	391	5.56	1,608,080	165,021	9.74	67,159	23,526	2.85	0
UBUS	22,184	4,456	4.98	0	0	0.00	95,702	24,777	3.86	0
Total	88,786,022	2,415,629	36.75	7,201,325	449,114	16.03	162,861	48,303	3.37	4,684,779

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: Sub-Area

Region: Orange (SC)

Calendar Year: 2040

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
Orange (SC)	2040	All Other Buses	Aggregated	Aggregated	DSL	755.0402203	40267.55579	6342.337851	3.105236812
Orange (SC)	2040	LDA	Aggregated	Aggregated	GAS	1582685.024	52652246.55	7463205.718	1239.508109
Orange (SC)	2040	LDA	Aggregated	Aggregated	DSL	19404.31654	653803.034	91977.51418	10.08528217
Orange (SC)	2040	LDA	Aggregated	Aggregated	ELEC	99687.03553	3504423.927	476430.924	0
Orange (SC)	2040	LDT1	Aggregated	Aggregated	GAS	194475.1852	6110029.498	894231.5962	168.6551034
Orange (SC)	2040	LDT1	Aggregated	Aggregated	DSL	25.56540131	827.2650889	119.2532434	0.02430945
Orange (SC)	2040	LDT1	Aggregated	Aggregated	ELEC	6911.690996	237054.4232	32761.90613	0
Orange (SC)	2040	LDT2	Aggregated	Aggregated	GAS	526969.2689	17096888.69	2453407.544	466.1986518
Orange (SC)	2040	LDT2	Aggregated	Aggregated	DSL	5296.556448	175287.258	24934.14024	3.605853981
Orange (SC)	2040	LDT2	Aggregated	Aggregated	ELEC	22773.46987	547642.4141	108422.8567	0
Orange (SC)	2040	LHD1	Aggregated	Aggregated	GAS	35398.8873	1167777.844	527390.6765	90.24091498
Orange (SC)	2040	LHD1	Aggregated	Aggregated	DSL	40246.32104	1322786.985	506248.0888	50.07816859
Orange (SC)	2040	LHD2	Aggregated	Aggregated	GAS	6555.765317	206607.2181	97671.13514	18.41786512
Orange (SC)	2040	LHD2	Aggregated	Aggregated	DSL	16331.07337	517672.3313	205424.3585	21.78583882
Orange (SC)	2040	MCY	Aggregated	Aggregated	GAS	83552.73189	478890.2715	167105.4638	13.03430357
Orange (SC)	2040	MDV	Aggregated	Aggregated	GAS	338991.4154	10660563.45	1565482.756	355.7161676
Orange (SC)	2040	MDV	Aggregated	Aggregated	DSL	11876.48608	382112.9527	55571.42867	10.23349127
Orange (SC)	2040	MDV	Aggregated	Aggregated	ELEC	16408.87561	395657.9114	78199.18889	0
Orange (SC)	2040	MH	Aggregated	Aggregated	GAS	6757.148244	63292.32801	675.9851103	9.828808191
Orange (SC)	2040	MH	Aggregated	Aggregated	DSL	3605.599257	29119.50109	360.5599257	2.320180833
Orange (SC)	2040	Motor Coach	Aggregated	Aggregated	DSL	184.0291042	22762.51895	2686.824922	2.684602934
Orange (SC)	2040	OBUS	Aggregated	Aggregated	GAS	1186.803331	44315.21061	23745.56104	6.938809888
Orange (SC)	2040	PTO	Aggregated	Aggregated	DSL	0	46381.77222	0	7.229930439
Orange (SC)	2040	SBUS	Aggregated	Aggregated	GAS	939.7427115	34439.47102	3758.970846	3.213103843
Orange (SC)	2040	SBUS	Aggregated	Aggregated	DSL	1222.84052	39043.11832	14111.41006	3.878496407
Orange (SC)	2040	T6 CAIRP heavy	Aggregated	Aggregated	DSL	141.2692441	23517.26202	2062.530963	1.503766466
Orange (SC)	2040	T6 CAIRP small	Aggregated	Aggregated	DSL	72.09446949	3089.707995	1052.579255	0.221448459
Orange (SC)	2040	T6 instate constructio	Aggregated	Aggregated	DSL	383.1318136	25115.00363	1732.124033	1.995169966
Orange (SC)	2040	T6 instate constructio	Aggregated	Aggregated	DSL	2676.150624	133151.7519	12098.77292	9.748968514
Orange (SC)	2040	T6 instate heavy	Aggregated	Aggregated	DSL	8895.473283	917923.7165	102652.5284	63.19083734
Orange (SC)	2040	T6 instate small	Aggregated	Aggregated	DSL	27118.87508	1226308.042	312948.0585	89.75727559
Orange (SC)	2040	T6 OOS heavy	Aggregated	Aggregated	DSL	79.52448245	13324.28227	1161.057444	0.851415144
Orange (SC)	2040	T6 OOS small	Aggregated	Aggregated	DSL	44.13557076	1870.435147	644.379333	0.134310531
Orange (SC)	2040	T6 Public	Aggregated	Aggregated	DSL	798.4915127	12360.51735	2422.090919	1.147083033
Orange (SC)	2040	T6 utility	Aggregated	Aggregated	DSL	390.9694751	6520.301645	4496.148963	0.511431206
Orange (SC)	2040	T6T5	Aggregated	Aggregated	GAS	6070.049723	246613.0411	121449.5549	39.03012115
Orange (SC)	2040	T7 Ag	Aggregated	Aggregated	DSL	1.544479509	5.305283955	6.79570984	0.001155523
Orange (SC)	2040	T7 CAIRP	Aggregated	Aggregated	DSL	1044.640678	221007.243	15251.7539	21.50224286
Orange (SC)	2040	T7 CAIRP constructio	Aggregated	Aggregated	DSL	101.0176372	18040.32528	456.6968102	1.790028659
Orange (SC)	2040	T7 NNOOS	Aggregated	Aggregated	DSL	1618.412096	269440.188	23628.81661	27.60416499
Orange (SC)	2040	T7 NOOS	Aggregated	Aggregated	DSL	415.1158832	86836.12121	6060.691895	8.658432978
Orange (SC)	2040	T7 POLA	Aggregated	Aggregated	DSL	1675.723774	348244.3324	12735.50068	35.41496102
Orange (SC)	2040	T7 Public	Aggregated	Aggregated	DSL	1145.090984	23199.9272	3473.442648	2.844005366
Orange (SC)	2040	T7 Single	Aggregated	Aggregated	DSL	2899.543243	233587.8759	33460.32702	26.15688766
Orange (SC)	2040	T7 single constructio	Aggregated	Aggregated	DSL	587.8573418	44754.72885	2657.680187	4.95455887
Orange (SC)	2040	T7 SWCV	Aggregated	Aggregated	DSL	52.96896418	2164.226054	206.5789603	1.054709279
Orange (SC)	2040	T7 SWCV	Aggregated	Aggregated	NG	1647.391387	67158.54954	6424.826408	23.52591724
Orange (SC)	2040	T7 tractor	Aggregated	Aggregated	DSL	2596.313799	322326.7477	32973.18524	30.86182473
Orange (SC)	2040	T7 tractor constructio	Aggregated	Aggregated	DSL	492.6426069	36918.71106	2227.218072	4.000932283
Orange (SC)	2040	T7 utility	Aggregated	Aggregated	DSL	76.67414114	1554.186184	881.7526231	0.177286368
Orange (SC)	2040	T7T5	Aggregated	Aggregated	GAS	20.11042063	2174.646107	402.3692959	0.390846175
Orange (SC)	2040	UBUS	Aggregated	Aggregated	GAS	234.8134769	22183.70676	939.2539075	4.455899165
Orange (SC)	2040	UBUS	Aggregated	Aggregated	DSL	0	0	0	0
Orange (SC)	2040	UBUS	Aggregated	Aggregated	NG	826.2967794	95702.31164	3305.187118	24.77659869