

Appendix C

Energy Data

Operational Energy Summary

Land Use	Natural Gas kBTU/year	Natural Gas therm/year	Electricity kWh/year	Electricity MWh/year	Diesel gallons/year	Gasoline gallons/year
Apartments Mid Rise	43,237,300	432,373	12,737,500	12,738	0.00	0.00
Apartments High Rise	10,949,800	109,498	3,225,760	3,226	0.00	0.00
Total	54,187,100	541,871	15,963,260	15,963	0	0

therm/kbtu 100.000000
kBTU/MMBT 1000

Energy Calculations Summary

Operational Fuel Use Summary

Fuel Type	Fleet Mix (%)	Gallons per Mile	Annual VMT	Gallons
Gasoline	98.99%	0.04	56,121,351	2,100,661
Diesel	1.01%	0.11		61,889

Notes:

1. Fleet mix calculated from CalEEMod default values.
2. Gallons per mile calculated from EMFAC 2021.
3. Annual VMT obtained from CalEEMod output file.

Source: EMFAC2017 (v1.0.3) Emissions Inventory

Region Type: County

Region: Los Angeles

Calendar Year: 2030

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

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Gasoline Fuel Consumption 1,000 gallons/day	Diesel Fuel Consumption 1,000 gallons/day		
Los Angele	2030	All Other Buses	Aggregate	Aggregate	Diesel	1636.819531	83095.19381	14567.69383		8.489361053		
Los Angele	2030	LDA	Aggregate	Aggregate	Gasoline	3136959.222	121780154.6	14537513.07	3859.424923			
Los Angele	2030	LDA	Aggregate	Aggregate	Diesel	4577.363477	146104.8551	19777.56653		3.327656531		
Los Angele	2030	LDT1	Aggregate	Aggregate	Gasoline	293964.8064	10653272.34	1300393.249	404.1208339			
Los Angele	2030	LDT1	Aggregate	Aggregate	Diesel	5.527440986	147.3636897	18.71479944		0.005765751		
Los Angele	2030	LDT2	Aggregate	Aggregate	Gasoline	1780543.91	71593441.1	8353294.912	2777.773465			
Los Angele	2030	LDT2	Aggregate	Aggregate	Diesel	6259.401639	257725.9483	29811.71682		7.696169126		
Los Angele	2030	LHD1	Aggregate	Aggregate	Gasoline	123658.0684	4849433.637	1842320.969	322.7384067			
Los Angele	2030	LHD1	Aggregate	Aggregate	Diesel	71625.23272	2982200.36	900955.323		142.1635902		
Los Angele	2030	LHD2	Aggregate	Aggregate	Gasoline	18341.99845	671619.3244	273268.4473	51.41496698			
Los Angele	2030	LHD2	Aggregate	Aggregate	Diesel	33595.07081	1355333.296	422583.7282		75.8798492		
Los Angele	2030	MCY	Aggregate	Aggregate	Gasoline	169664.3404	1075424.981	339328.6807	25.72316722			
Los Angele	2030	MDV	Aggregate	Aggregate	Gasoline	1028995.775	38839963.62	4784176.417	1842.404262			
Los Angele	2030	MDV	Aggregate	Aggregate	Diesel	11847.11507	445010.227	55272.36118		17.61539251		
Los Angele	2030	MH	Aggregate	Aggregate	Gasoline	13832.23131	146499.5702	1383.77642	30.24263244			
Los Angele	2030	MH	Aggregate	Aggregate	Diesel	6520.37075	68182.01231	652.037075		6.84713812		
Los Angele	2030	Motor Coach	Aggregate	Aggregate	Diesel	750.493486	88849.20604	17246.34031		15.04253673		
Los Angele	2030	OBUS	Aggregate	Aggregate	Gasoline	3058.660789	106862.5937	61197.68507	20.0931014			
Los Angele	2030	PTO	Aggregate	Aggregate	Diesel	0	108947.4302	0		20.49126174		
Los Angele	2030	SBUS	Aggregate	Aggregate	Gasoline	1574.910091	71322.99518	6299.640364	7.7514588			
Los Angele	2030	SBUS	Aggregate	Aggregate	Diesel	1518.038977	31056.79954	21981.20438		4.106857672		
Los Angele	2030	T6 CAIRP heavy	Aggregate	Aggregate	Diesel	261.6426231	51100.086	6012.547479		4.715344195		
Los Angele	2030	T6 CAIRP small	Aggregate	Aggregate	Diesel	235.6672078	12630.55577	5415.632436		1.302633879		
Los Angele	2030	T6 instate heavy	Aggregate	Aggregate	Diesel	11021.49926	496462.4468	136898.8975		53.68137197		
Los Angele	2030	T6 instate small	Aggregate	Aggregate	Diesel	47559.41592	1756181.754	605328.6354		193.3981026		
Los Angele	2030	T6 OOS heavy	Aggregate	Aggregate	Diesel	143.3269003	36726.39534	3293.652168		3.299268532		
Los Angele	2030	T6 OOS small	Aggregate	Aggregate	Diesel	154.2905383	8392.937393	3545.596571		0.82012952		
Los Angele	2030	T6 Public	Aggregate	Aggregate	Diesel	3976.690138	161100.956	20400.42041		18.12056365		
Los Angele	2030	T6 Utility	Aggregate	Aggregate	Diesel	792.918856	32666.82332	10149.36136		3.429526612		
Los Angele	2030	T6T5	Aggregate	Aggregate	Gasoline	12630.80747	675986.2573	252717.1958	123.4596288			
Los Angele	2030	T7 CAIRP	Aggregate	Aggregate	Diesel	7290.184134	1462598.76	167528.4314		213.6679417		
Los Angele	2030	T7 NNOOS	Aggregate	Aggregate	Diesel	6880.619533	1892442.122	158116.6369		259.9830063		
Los Angele	2030	T7 NOOS	Aggregate	Aggregate	Diesel	2983.755422	687165.9738	68566.69959		97.58898142		
Los Angele	2030	T7 POAK	Aggregate	Aggregate	Diesel	1.052362416	121.8374471	17.21664913		0.021500857		
Los Angele	2030	T7 POLA	Aggregate	Aggregate	Diesel	9807.116165	1392413.459	160444.4205		227.0222518		
Los Angele	2030	T7 Public	Aggregate	Aggregate	Diesel	2939.069453	117424.3975	15077.4263		19.82744469		
Los Angele	2030	T7 Single	Aggregate	Aggregate	Diesel	10483.62139	509950.9084	98755.71348		81.91445247		
Los Angele	2030	T7 SWCV	Aggregate	Aggregate	Diesel	624.6481011	40491.07248	2873.381265		15.30636505		
Los Angele	2030	T7 Tractor	Aggregate	Aggregate	Diesel	18420.50331	1191370.551	267649.9131		183.647221		
Los Angele	2030	T7 Utility	Aggregate	Aggregate	Diesel	462.8482168	19350.33795	5924.457175		3.06237015		
Los Angele	2030	T7IS	Aggregate	Aggregate	Gasoline	20.0382507	2087.699596	400.92532	0.449595947			
Los Angele	2030	UBUS	Aggregate	Aggregate	Gasoline	424.0146281	30262.45025	1696.058513	6.491346774			
Los Angele	2030	UBUS	Aggregate	Aggregate	Diesel	0.216177208	22.79632199	0.864708833		0.002875046		
			TOTAL				265,931,598		9472.09	1682.48	23.8	0.04
			Total (Gas)				250,496,331				26.4	0.04
			Total (Diesel)				15,435,267				9.2	0.11
			Annual VMT				56,121,351					
							Mix (%)	Miles	Gallons			
			Gas				99.0%	55,553,515	2,100,661			
			Diesel				1.0%	567,780	61,889			

Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
All Project Land Uses	0.529534	0.067658	0.193471	0.126518	0.02426	0.006985	0.011675	0.007885	0.000939	0.000569	0.026493	0.000724	0.003288

Gas 99.0%
Diesel 1.0%

Energy Calculations Summary

Construction Fuel Usage Summary

	Diesel	Gasoline	Diesel	Diesel
Construction Year	Off-road Equipment (gallons)	On-road (gallons)	On-road (gallons)	Combined
2022	21,395	45,200	10,897	32,292
x 8 years of construction	171162.1488	361596.4	87177.83039	258339.9792
Total Gasoline	361,596	gallons		
Total Diesel	258,340	gallons		

2022 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73	13	0.6	184
Demolition	Excavators	3	8.00	158	0.38	13	0.6	562
Demolition	Rubber Tired Dozers	2	8.00	247	0.40	13	0.6	617
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40	7	0.6	498
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37	7	0.6	241
Grading	Excavators	2	8.00	158	0.38	20	0.6	576
Grading	Graders	1	8.00	187	0.41	20	0.6	368
Grading	Rubber Tired Dozers	1	8.00	247	0.40	20	0.6	474
Grading	Scrapers	2	8.00	367	0.48	20	0.6	1,691
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37	20	0.6	345
Building Construction	Cranes	1	7.00	231	0.29	195	0.6	2,743
Building Construction	Forklifts	3	8.00	89	0.20	195	0.6	2,499
Building Construction	Generator Sets	1	8.00	84	0.74	195	0.6	2,909
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	195	0.6	4,409
Building Construction	Welders	1	8.00	46	0.45	195	0.6	969
Paving	Pavers	2	8.00	130	0.42	13	0.6	341
Paving	Paving Equipment	2	8.00	132	0.36	13	0.6	297
Paving	Rollers	2	8.00	80	0.38	13	0.6	190
Architectural Coating	Air Compressors	1	6.00	78	0.48	220	0.6	1,483
TOTAL								21,395

	Year	Start Date	End Date	Network Days
Demolition	2022	1/1/2022	1/19/2022	13
Site Preparation	2022	1/20/2022	1/28/2022	7
Grading	2022	1/31/2022	2/25/2022	20
Building Construction	2022	2/28/2022	11/25/2022	195
Architectural Coating	2022	2/28/2022	12/30/2022	220
Paving	2022	11/26/2022	12/14/2022	13

Trips and VMT

2022

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	Total gallons of gasoline	Total gallons of diesel
Demolition	15	13	195		3,292	14.70	6.90	20.00	2866.5	0	65840	113	10,835
Site Preparation	18	7	126			14.70	6.90	20.00	1852.2	0	0	73	0
Grading	20	20	400			14.70	6.90	20.00	5880	0	0	232	0
Building Construction	374	195	72930	55		14.70	6.90	20.00	1072071	379.5	0	42,302	62
Paving	15	220	3300			14.70	6.90	20.00	48510	0	0	1,914	0
Architectural Coating	75	13	975			14.70	6.90	20.00	14332.5	0	0	566	0
											TOTAL	45,200	10,897

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Source: EMFAC2021 (v1.0.1) Emissions Inventory

Region Type: County

Region: Los Angeles

Calendar Year: 2022

Season: Annual

Vehicle Classification: EMFAC2011 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	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Los Angeles	2022	LDA	Aggregate	Aggregate	Gasoline	3492277.169	138838026.7	16264993.39	4986.046816	0.00	27.85	25.34	6.08
Los Angeles	2022	LDT1	Aggregate	Aggregate	Gasoline	328948.7381	11907335.41	1447067.581	510.9358458	0.00	23.30		
Los Angeles	2022	LDT2	Aggregate	Aggregate	Gasoline	1526623.58	62593838.94	7170946.416	2797.090572	0.00	22.38		
Los Angeles	2022	T7 Tractor	Aggregate	Aggregate	Diesel	13053.33208	1077586.705	189664.9152	0.00	177.3300745	6.08		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).