



APPENDIX C
Energy Calculations

Table 1. Summary of Energy Use During Construction

Fuel Type	Quantity
Diesel	
On-Site Construction Equipment	50,057 Gallons
Off-Site Motor Vehicles	15,338 Gallons
<i>Total</i>	<i>65,395 Gallons</i>
Gasoline	
On-Site Construction Equipment	0 Gallons
Off-Site Motor Vehicles	13,136 Gallons
<i>Total</i>	<i>13,136 Gallons</i>
Electricity	
<i>Total</i>	<i>1,086.9 kWh</i>

Table 2. Summary of Annual Energy Use During Operation		
Source	Units	Buildout
Electricity		
Apartments	kWh/yr	269,510
Retail	kWh/yr	587,497
Total Building	kWh/yr	857,007
Water	kWh/yr	135,691
<i>Total</i>	<i>kWh/yr</i>	<i>992,698</i>
Natural Gas		
Apartments	kBTU/yr	940,794
Retail	kBTU/yr	73,269
<i>Total</i>	<i>kBTU/yr</i>	<i>1,014,063</i>
Transportation/On-Site Sources		
Diesel	gallons	10,852
Gasoline	gallons	58,940
<i>Total</i>	<i>gallons</i>	<i>69,792</i>

Table 3. Water by Land Use				
Land Use	Units	Indoor/Outdoor Use	Indoor Use	Outdoor Use
Buildout	Mgal	6.41652 / 4.69324	6.41652	4.69324

Water and Wastewater Electricity Intensity (kWh/gallon)

Supply Water	0.009727
Treat Water	0.000111
Distribute Water	0.001272
Wastewater Treatment	0.001911

Source: CalEEMod User's Guide, Appendix D, Table 9.2 Los Angeles - South Coast

Indoor Water Factor	0.013021 kWh/gallon (supply, treat, distribute, wastewater treatment)
Outdoor Water Factor	0.01111 kWh/gallon (supply, treat, and distribute)

Notes:

Electricity and Natural Gas for the Proposed Project is total operational usage.
 Electricity, natural gas, and mobile usage was calculated from CalEEMod. Indoor water factor used for entire Project Site for conservative analysis.

Table 4. Off-Road Equipment Fuel Usage During Construction

Phase Name	Off-road Equipment Type	Amount	Hours per Day	Horsepower	Load Factor	Number of Days	Diesel Fuel Usage
							(Gallons per Project)
Demolition	Concrete/Industrial Saws	1	8	81	0.73	10	237
Demolition	Excavators	3	8	158	0.38	10	720
Demolition	Rubber Tired Dozers	2	8	247	0.4	10	790
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	10	1,186
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	10	574
Grading	Excavators	1	8	158	0.38	22	528
Grading	Graders	1	8	187	0.41	22	675
Grading	Rubber Tired Dozers	1	8	247	0.4	22	869
Grading	Tractors/Loaders/Backhoes	3	8	97	0.37	22	947
Building Construction	Cranes	1	7	231	0.29	352	8,253
Building Construction	Forklifts	3	8	89	0.2	352	7,519
Building Construction	Generator Sets	1	8	84	0.74	352	8,752
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	352	13,265
Building Construction	Welders	1	8	46	0.45	352	2,915
Paving	Pavers	2	8	130	0.42	22	961
Paving	Paving Equipment	2	8	132	0.36	22	836
Paving	Rollers	2	8	80	0.38	22	535
Architectural Coating	Air Compressors	1	6	78	0.48	44	494
Total							50,057

Notes:

Equipment assumptions from CalEEMod.

Fuel usage estimate of 0.05 gallons per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3 E.

Table 5. On-Road Vehicle Fuel Usage During Construction

Sub Area 1	Days	Daily Trips		Total			Trip Length (Miles)			Total Length (Miles)			Fuel Consumption (Gallons)	
		Worker	Vendor	Worker Trips	Vendor Trips	Haul Trips	Worker	Vendor	Hauling	Worker	Vendor	Hauling	Gasoline	Diesel
Demolition	10	15	0	150	0	63	14.7	6.9	20	2,205	0	1,260	79	249
Site Prep	10	18	0	180	0	0	14.7	6.9	20	2,646	0	0	95	70
Grading	22	15	0	330	0	0	14.7	6.9	20	4,851	0	0	175	128
Building Construction	352	66	15	23,232	5,280	0	14.7	6.9	20	341,510	36,432	0	12,309	14,540
Architectural Coating	44	13	0	572	0	0	14.7	6.9	20	8,408	0	0	303	222
Paving	22	15	0	330	0	0	14.7	6.9	20	4,851	0	0	175	128
Total	460	142	15	24,794	5,280	63	n/a	n/a	n/a	364,472	36,432	1,260	13,136	15,338

Fuel Efficiency	Gas	DSL
Workers	27.75	37.81
Vendor/Haul Trucks	0	6.62

Notes:
 Fuel efficiency calculated in **Table 7: EMFAC2017 Results - Construction.**

Table 6. Water Usage for Control of Fugitive Dust During Construction			
Phase Name	Total Acres	Gallons for Project	Electricity (kWh)
Project	37.0	111,740	1,086.9

Notes:

Total acres graded based on CalEEMod output sheets.

Water Usage

3,020 gallons per acre per day

Source: Air & Waste Management Association, Air Pollution Engineering Manual, 1992 Edition

Supply Water Electricity Intensity

0.009727 kWh/gallons (CalEEMod default for South Coast Air Basin)

Table 7. EMFAC2017 Results - Construction								
Vehicle Class	Fuel	VMT (miles per day)	Fuel (1,000 gal per day)	Fuel Efficiency (miles per gallon)	Fuel	VMT (miles per day)	Fuel (1,000 gal per day)	Fuel Efficiency (miles per gallon)
LDA	GAS	154,312,637	5,096.55	30.28	DSL	1,405,949	29.72	47.31
LDT1	GAS	17,402,686	666.55	26.11	DSL	6,756	0.31	21.82
LDT2	GAS	52,851,239	2,173.39	24.32	DSL	384,253	11.04	34.80
Average (LDA, LDT1, LDT2)				27.75				37.81
T7 Tractor Construction	DSL	250,084	37.80	6.62				

Construction Worker Fleet Mix

LDA	50%
LDT1	25%
LDT2	25%

Vendor and Delivery/Haul Truck Fleet Mix

HHDT	100%
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EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: LOS ANGELES

Calendar Year: 2022

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	MdYr	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2022	LDA	Aggregated	Aggregated	GAS	4040504.833	154312636.5	19063483.35	5096.55014
LOS ANGELES	2022	LDA	Aggregated	Aggregated	DSL	35580.70761	1405948.594	168445.7609	29.71915281
LOS ANGELES	2022	LDA	Aggregated	Aggregated	ELEC	79346.01523	3237232.352	396260.3789	0
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	GAS	466456.294	17402686.02	2155709.822	666.5509097
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	DSL	276.3592923	6755.981354	979.1709586	0.309652997
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	ELEC	3550.873409	146697.1661	17760.7296	0
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	GAS	1395327.914	52851239.49	6550846.129	2173.392058
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	DSL	9029.025545	384253.17	44544.01587	11.04279173
LOS ANGELES	2022	T7 tractor constr	Aggregated	Aggregated	DSL	3625.325785	250084.1249	16389.95692	37.80397958
									8015.368685
									8015368.685
		Gas	7936.493108	7936493.108	2896819984	35,378,625.00		2,925,609,569.96	
		Diesel	78.87557712	78875.57712	28789585.65	10,548,851.00			
						45,927,476.00			

Table 8. On road Vehicles - Operational				
Scenario	Annual VMT	Fuel Consumption (gal)		
		Gasoline	Diesel	Total
Project	1,711,876	58,940	10,852	69,792

Table 9. Fuel Consumption Summary		
Fuel	Fuel Efficiency (MPG)	%Fleet
Gasoline	27.0	93.0%
Diesel	11.0	7.0%

Notes:

Percent fleet and fuel efficiency based on

Table 10: EMFAC2017 Emissions

Inventory-Operations

Annual VMT obtained from the CalEEMod Output files.

Table 10. EMFAC2017 Emissions Inventory - Operations				
Fuel	VMT (miles/day)	Fuel Consumption (1,000 gal/day)	Fuel Efficiency (miles per gallon)	Fuel Percentage
GAS	265,004,080	9,811	27.0	93
DSL	19,421,765	1,759	11.0	7
Natural Gas	569,475	166	3.4	3

Note: Fuel percentage based on VMT.

Fuel efficiency calculated using fuel consumption and VMT from EMFAC2017.

Buildout

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: LOS ANGELES

Calendar Year: 2024

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	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2024	All Other Buses	Aggregated	Aggregated	DSL	2550.285825	155192.9075	21422.401	14.5796828
LOS ANGELES	2024	LDA	Aggregated	Aggregated	DSL	39426.20875	1524143.418	187277.96	30.6996175
LOS ANGELES	2024	LDT1	Aggregated	Aggregated	DSL	239.6097239	5792.696626	847.72508	0.25937487
LOS ANGELES	2024	LDT2	Aggregated	Aggregated	DSL	10688.55158	433988.6515	52394.5	11.864706
LOS ANGELES	2024	LHD1	Aggregated	Aggregated	DSL	75659.92974	3110121.54	951706.74	138.91136
LOS ANGELES	2024	LHD2	Aggregated	Aggregated	DSL	30662.47325	1211866.91	385695.34	60.1253881
LOS ANGELES	2024	MDV	Aggregated	Aggregated	DSL	23435.64201	890977.0436	114506.06	31.4943213
LOS ANGELES	2024	MH	Aggregated	Aggregated	DSL	6733.817582	68909.9733	673.38176	6.37587215
LOS ANGELES	2024	Motor Coach	Aggregated	Aggregated	DSL	692.3865446	96422.70551	10108.844	14.2705799
LOS ANGELES	2024	PTO	Aggregated	Aggregated	DSL	0	80804.35604	0	15.4705344
LOS ANGELES	2024	SBUS	Aggregated	Aggregated	DSL	3919.441666	123729.7021	45229.813	15.9223254
LOS ANGELES	2024	T6 Ag	Aggregated	Aggregated	DSL	12.05761943	92.02238142	53.053525	0.01058727
LOS ANGELES	2024	T6 CAIRP heavy	Aggregated	Aggregated	DSL	364.8958628	69605.216	5327.4796	5.69918357
LOS ANGELES	2024	T6 CAIRP small	Aggregated	Aggregated	DSL	193.7506093	9851.189531	2828.7589	0.86629243
LOS ANGELES	2024	T6 instate construc	Aggregated	Aggregated	DSL	2676.133971	174496.7049	12098.698	16.1810011
LOS ANGELES	2024	T6 instate construc	Aggregated	Aggregated	DSL	8415.600524	462439.154	38046.603	42.4383142
LOS ANGELES	2024	T6 instate heavy	Aggregated	Aggregated	DSL	11424.50101	1542886.662	131837.16	132.172809
LOS ANGELES	2024	T6 instate small	Aggregated	Aggregated	DSL	40265.57798	2079152.747	464659.19	189.362079
LOS ANGELES	2024	T6 OOS heavy	Aggregated	Aggregated	DSL	211.2915399	40380.48061	3084.8565	3.30433425
LOS ANGELES	2024	T6 OOS small	Aggregated	Aggregated	DSL	110.7928558	5599.998854	1617.5757	0.49303644

LOS ANGELES	2024 T6 Public	Aggregated	Aggregated	DSL	4600.890676	72378.98569	13956.035	8.54313971
LOS ANGELES	2024 T6 utility	Aggregated	Aggregated	DSL	1042.333884	17403.55281	11986.84	1.73010193
LOS ANGELES	2024 T7 Ag	Aggregated	Aggregated	DSL	6.009096854	73.97272745	26.440026	0.01332593
LOS ANGELES	2024 T7 CAIRP	Aggregated	Aggregated	DSL	6457.8494	1175419.863	94284.601	161.593318
LOS ANGELES	2024 T7 CAIRP construct	Aggregated	Aggregated	DSL	685.8883869	125342.499	3100.8747	16.3107729
LOS ANGELES	2024 T7 NNOOS	Aggregated	Aggregated	DSL	7393.75045	1432863.068	107948.76	185.771721
LOS ANGELES	2024 T7 NOOS	Aggregated	Aggregated	DSL	2566.537268	461836.3912	37471.444	65.1552708
LOS ANGELES	2024 T7 POLA	Aggregated	Aggregated	DSL	8741.9427	1195541.843	66438.765	185.319426
LOS ANGELES	2024 T7 Public	Aggregated	Aggregated	DSL	5626.024305	113978.9385	17065.607	19.0275317
LOS ANGELES	2024 T7 Single	Aggregated	Aggregated	DSL	6194.688163	406946.8885	71485.843	58.2079548
LOS ANGELES	2024 T7 single constructi	Aggregated	Aggregated	DSL	4448.629899	310951.6857	20112.083	43.2689171
LOS ANGELES	2024 T7 SWCV	Aggregated	Aggregated	DSL	1153.829846	47142.48692	4499.9364	23.2245494
LOS ANGELES	2024 T7 tractor	Aggregated	Aggregated	DSL	13029.73414	1706073.809	165477.62	222.375482
LOS ANGELES	2024 T7 tractor construc	Aggregated	Aggregated	DSL	3767.089352	256507.7642	17030.864	35.9032936
LOS ANGELES	2024 T7 utility	Aggregated	Aggregated	DSL	414.5877733	8411.347954	4767.7594	1.31507403
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	DSL	31.1389	4437.958414	124.5556	0.66611894
LOS ANGELES	2024 LDA	Aggregated	Aggregated	ELEC	108760.0057	4606816.53	541506.48	0
LOS ANGELES	2024 LDT1	Aggregated	Aggregated	ELEC	5956.425776	258843.1671	29864.61	0
LOS ANGELES	2024 LDT2	Aggregated	Aggregated	ELEC	22868.95176	716376.6957	115104.59	0
LOS ANGELES	2024 MDV	Aggregated	Aggregated	ELEC	13797.5581	444370.1962	70078.957	0
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	ELEC	14	1217.553685	56	0
LOS ANGELES	2024 LDA	Aggregated	Aggregated	GAS	4116236.085	153254097	19419688	4812.00177
LOS ANGELES	2024 LDT1	Aggregated	Aggregated	GAS	494837.5912	18036183.16	2293057.3	658.905526
LOS ANGELES	2024 LDT2	Aggregated	Aggregated	GAS	1446244.823	53548483.34	6797962.9	2061.5571
LOS ANGELES	2024 LHD1	Aggregated	Aggregated	GAS	107107.329	3837942.251	1595739.6	359.289584
LOS ANGELES	2024 LHD2	Aggregated	Aggregated	GAS	18386.11912	636642.4367	273925.78	68.4369902
LOS ANGELES	2024 MCY	Aggregated	Aggregated	GAS	194917.9854	1339730.795	389835.97	37.6839165
LOS ANGELES	2024 MDV	Aggregated	Aggregated	GAS	960343.1935	33066846	4461450.5	1570.66085
LOS ANGELES	2024 MH	Aggregated	Aggregated	GAS	19619.12788	198262.4986	1962.6976	37.5139319
LOS ANGELES	2024 OBUS	Aggregated	Aggregated	GAS	4013.566193	160611.9813	80303.432	31.281714
LOS ANGELES	2024 SBUS	Aggregated	Aggregated	GAS	1602.639267	63772.44869	6410.5571	6.78677828
LOS ANGELES	2024 T6TS	Aggregated	Aggregated	GAS	14933.06448	821324.3121	298780.75	157.932265
LOS ANGELES	2024 T7IS	Aggregated	Aggregated	GAS	52.34072203	6205.870846	1047.2332	1.4394487
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	GAS	469.2067601	33977.63894	1876.827	7.37797617
LOS ANGELES	2024 T7 SWCV	Aggregated	Aggregated	NG	2967.934822	120873.8865	11574.946	52.347979
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	NG	4233.317372	448601.2989	16933.269	114.105429

Table 1. Summary of Energy Use During Construction

Fuel Type	Quantity
Diesel	
On-Site Construction Equipment	49,698 Gallons
Off-Site Motor Vehicles	43,198 Gallons
<i>Total</i>	<i>92,896 Gallons</i>
Gasoline	
On-Site Construction Equipment	0 Gallons
Off-Site Motor Vehicles	42,309 Gallons
<i>Total</i>	<i>42,309 Gallons</i>
Electricity	
<i>Total</i>	<i>1,086.9 kWh</i>

Table 2. Summary of Annual Energy Use During Operation		
Source	Units	Buildout
Electricity		
Apartments	kWh/yr	1,104,240
Total Building	kWh/yr	1,104,240
Water	kWh/yr	384,891
<i>Total</i>	<i>kWh/yr</i>	<i>1,489,131</i>
Natural Gas		
Apartments	kBTU/yr	3,854,640
<i>Total</i>	<i>kBTU/yr</i>	<i>3,854,640</i>
Transportation/On-Site Sources		
Diesel	gallons	44,470
Gasoline	gallons	241,515
<i>Total</i>	<i>gallons</i>	<i>285,985</i>

Table 3. Water by Land Use				
Land Use	Units	Indoor/Outdoor Use	Indoor Use	Outdoor Use
Buildout	Mgal	19.2204 / 12.1172	19.2204	12.1172

Water and Wastewater Electricity Intensity (kWh/gallon)

Supply Water	0.009727
Treat Water	0.000111
Distribute Water	0.001272
Wastewater Treatment	0.001911

Source: CalEEMod User's Guide, Appendix D, Table 9.2 Los Angeles - South Coast

Indoor Water Factor	0.013021 kWh/gallon (supply, treat, distribute, wastewater treatment)
Outdoor Water Factor	0.01111 kWh/gallon (supply, treat, and distribute)

Notes:

Electricity and Natural Gas for the Proposed Project is total operational usage.
Electricity, natural gas, and mobile usage was calculated from CalEEMod. Indoor water factor used for entire Project Site for conservative analysis.

Table 4. Off-Road Equipment Fuel Usage During Construction

Phase Name	Off-road Equipment Type	Amount	Hours per Day	Horsepower	Load Factor	Number of Days	Diesel Fuel Usage
							(Gallons per Project)
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	10	1,186
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	10	574
Grading	Excavators	1	8	158	0.38	22	528
Grading	Graders	1	8	187	0.41	22	675
Grading	Rubber Tired Dozers	1	8	247	0.4	22	869
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Building Construction	Cranes	1	7	231	0.29	364	8,535
Building Construction	Forklifts	3	8	89	0.2	364	7,775
Building Construction	Generator Sets	1	8	84	0.74	364	9,050
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	364	13,717
Building Construction	Welders	1	8	46	0.45	364	3,014
Architectural Coating	Air Compressors	1	6	78	0.48	44	494
Paving	Pavers	2	8	130	0.42	22	961
Paving	Paving Equipment	2	8	132	0.36	22	836
Paving	Rollers	2	8	80	0.38	22	535
Total							49,698

Notes:

Equipment assumptions from CalEEMod.

Fuel usage estimate of 0.05 gallons per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3 E.

Table 5. On-Road Vehicle Fuel Usage During Construction

Sub Area 1	Days	Daily Trips		Total			Trip Length (Miles)			Total Length (Miles)			Fuel Consumption (Gallons)	
		Worker	Vendor	Worker Trips	Vendor Trips	Haul Trips	Worker	Vendor	Hauling	Worker	Vendor	Hauling	Gasoline	Diesel
Site Prep	10	18	0	180	0	0	14.7	6.9	20	2,646	0	0	95	70
Grading	22	15	0	330	0	0	14.7	6.9	20	4,851	0	0	175	128
Building Construction	364	212	32	77,168	11,648	0	14.7	6.9	20	1,134,370	80,371	0	40,885	42,153
Architectural Coating	44	42	0	1,848	0	0	14.7	6.9	20	27,166	0	0	979	719
Paving	22	15	0	330	0	0	14.7	6.9	20	4,851	0	0	175	128
Total	462	302	32	79,856	11,648	0	n/a	n/a	n/a	1,173,883	80,371	0	42,309	43,198

Fuel Efficiency	Gas	DSL
Workers	27.75	37.81
Vendor/Haul Trucks	0	6.62

Notes:
 Fuel efficiency calculated in **Table 7: EMFAC2017 Results - Construction.**

Table 6. Water Usage for Control of Fugitive Dust During Construction			
Phase Name	Total Acres	Gallons for Project	Electricity (kWh)
Project	37.0	111,740	1,086.9

Notes:

Total acres graded based on CalEEMod output sheets.

Water Usage

3,020 gallons per acre per day

Source: Air & Waste Management Association, Air Pollution Engineering Manual, 1992 Edition

Supply Water Electricity Intensity

0.009727 kWh/gallons (CalEEMod default for South Coast Air Basin)

Table 7. EMFAC2017 Results - Construction								
Vehicle Class	Fuel	VMT (miles per day)	Fuel (1,000 gal per day)	Fuel Efficiency (miles per gallon)	Fuel	VMT (miles per day)	Fuel (1,000 gal per day)	Fuel Efficiency (miles per gallon)
LDA	GAS	154,312,637	5,096.55	30.28	DSL	1,405,949	29.72	47.31
LDT1	GAS	17,402,686	666.55	26.11	DSL	6,756	0.31	21.82
LDT2	GAS	52,851,239	2,173.39	24.32	DSL	384,253	11.04	34.80
Average (LDA, LDT1, LDT2)				27.75				37.81
T7 Tractor Construction	DSL	250,084	37.80	6.62				

Construction Worker Fleet Mix

LDA	50%
LDT1	25%
LDT2	25%

Vendor and Delivery/Haul Truck Fleet Mix

HHDT	100%
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EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: LOS ANGELES

Calendar Year: 2022

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	MdYr	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2022	LDA	Aggregated	Aggregated	GAS	4040504.833	154312636.5	19063483.35	5096.55014
LOS ANGELES	2022	LDA	Aggregated	Aggregated	DSL	35580.70761	1405948.594	168445.7609	29.71915281
LOS ANGELES	2022	LDA	Aggregated	Aggregated	ELEC	79346.01523	3237232.352	396260.3789	0
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	GAS	466456.294	17402686.02	2155709.822	666.5509097
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	DSL	276.3592923	6755.981354	979.1709586	0.309652997
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	ELEC	3550.873409	146697.1661	17760.7296	0
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	GAS	1395327.914	52851239.49	6550846.129	2173.392058
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	DSL	9029.025545	384253.17	44544.01587	11.04279173
LOS ANGELES	2022	T7 tractor constr	Aggregated	Aggregated	DSL	3625.325785	250084.1249	16389.95692	37.80397958
									8015.368685
									8015368.685
		Gas	7936.493108	7936493.108	2896819984	35,378,625.00		2,925,609,569.96	
		Diesel	78.87557712	78875.57712	28789585.65	10,548,851.00			
						45,927,476.00			

Table 8. On road Vehicles - Operational				
Scenario	Annual VMT	Fuel Consumption (gal)		
		Gasoline	Diesel	Total
Project	7,014,656	241,515	44,470	285,985

Table 9. Fuel Consumption Summary		
Fuel	Fuel Efficiency (MPG)	%Fleet
Gasoline	27.0	93.0%
Diesel	11.0	7.0%

Notes:

Percent fleet and fuel efficiency based on

Table 10: EMFAC2017 Emissions

Inventory-Operations

Annual VMT obtained from the CalEEMod Output files.

Table 10. EMFAC2017 Emissions Inventory - Operations				
Fuel	VMT (miles/day)	Fuel Consumption (1,000 gal/day)	Fuel Efficiency (miles per gallon)	Fuel Percentage
GAS	265,004,080	9,811	27.0	93
DSL	19,421,765	1,759	11.0	7
Natural Gas	569,475	166	3.4	3

Note: Fuel percentage based on VMT.

Fuel efficiency calculated using fuel consumption and VMT from EMFAC2017.

Buildout

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: LOS ANGELES

Calendar Year: 2024

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	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2024	All Other Buses	Aggregated	Aggregated	DSL	2550.285825	155192.9075	21422.401	14.5796828
LOS ANGELES	2024	LDA	Aggregated	Aggregated	DSL	39426.20875	1524143.418	187277.96	30.6996175
LOS ANGELES	2024	LDT1	Aggregated	Aggregated	DSL	239.6097239	5792.696626	847.72508	0.25937487
LOS ANGELES	2024	LDT2	Aggregated	Aggregated	DSL	10688.55158	433988.6515	52394.5	11.864706
LOS ANGELES	2024	LHD1	Aggregated	Aggregated	DSL	75659.92974	3110121.54	951706.74	138.91136
LOS ANGELES	2024	LHD2	Aggregated	Aggregated	DSL	30662.47325	1211866.91	385695.34	60.1253881
LOS ANGELES	2024	MDV	Aggregated	Aggregated	DSL	23435.64201	890977.0436	114506.06	31.4943213
LOS ANGELES	2024	MH	Aggregated	Aggregated	DSL	6733.817582	68909.9733	673.38176	6.37587215
LOS ANGELES	2024	Motor Coach	Aggregated	Aggregated	DSL	692.3865446	96422.70551	10108.844	14.2705799
LOS ANGELES	2024	PTO	Aggregated	Aggregated	DSL	0	80804.35604	0	15.4705344
LOS ANGELES	2024	SBUS	Aggregated	Aggregated	DSL	3919.441666	123729.7021	45229.813	15.9223254
LOS ANGELES	2024	T6 Ag	Aggregated	Aggregated	DSL	12.05761943	92.02238142	53.053525	0.01058727
LOS ANGELES	2024	T6 CAIRP heavy	Aggregated	Aggregated	DSL	364.8958628	69605.216	5327.4796	5.69918357
LOS ANGELES	2024	T6 CAIRP small	Aggregated	Aggregated	DSL	193.7506093	9851.189531	2828.7589	0.86629243
LOS ANGELES	2024	T6 instate construc	Aggregated	Aggregated	DSL	2676.133971	174496.7049	12098.698	16.1810011
LOS ANGELES	2024	T6 instate construc	Aggregated	Aggregated	DSL	8415.600524	462439.154	38046.603	42.4383142
LOS ANGELES	2024	T6 instate heavy	Aggregated	Aggregated	DSL	11424.50101	1542886.662	131837.16	132.172809
LOS ANGELES	2024	T6 instate small	Aggregated	Aggregated	DSL	40265.57798	2079152.747	464659.19	189.362079
LOS ANGELES	2024	T6 OOS heavy	Aggregated	Aggregated	DSL	211.2915399	40380.48061	3084.8565	3.30433425
LOS ANGELES	2024	T6 OOS small	Aggregated	Aggregated	DSL	110.7928558	5599.998854	1617.5757	0.49303644

LOS ANGELES	2024 T6 Public	Aggregated	Aggregated	DSL	4600.890676	72378.98569	13956.035	8.54313971
LOS ANGELES	2024 T6 utility	Aggregated	Aggregated	DSL	1042.333884	17403.55281	11986.84	1.73010193
LOS ANGELES	2024 T7 Ag	Aggregated	Aggregated	DSL	6.009096854	73.97272745	26.440026	0.01332593
LOS ANGELES	2024 T7 CAIRP	Aggregated	Aggregated	DSL	6457.8494	1175419.863	94284.601	161.593318
LOS ANGELES	2024 T7 CAIRP construct	Aggregated	Aggregated	DSL	685.8883869	125342.499	3100.8747	16.3107729
LOS ANGELES	2024 T7 NNOOS	Aggregated	Aggregated	DSL	7393.75045	1432863.068	107948.76	185.771721
LOS ANGELES	2024 T7 NOOS	Aggregated	Aggregated	DSL	2566.537268	461836.3912	37471.444	65.1552708
LOS ANGELES	2024 T7 POLA	Aggregated	Aggregated	DSL	8741.9427	1195541.843	66438.765	185.319426
LOS ANGELES	2024 T7 Public	Aggregated	Aggregated	DSL	5626.024305	113978.9385	17065.607	19.0275317
LOS ANGELES	2024 T7 Single	Aggregated	Aggregated	DSL	6194.688163	406946.8885	71485.843	58.2079548
LOS ANGELES	2024 T7 single constructi	Aggregated	Aggregated	DSL	4448.629899	310951.6857	20112.083	43.2689171
LOS ANGELES	2024 T7 SWCV	Aggregated	Aggregated	DSL	1153.829846	47142.48692	4499.9364	23.2245494
LOS ANGELES	2024 T7 tractor	Aggregated	Aggregated	DSL	13029.73414	1706073.809	165477.62	222.375482
LOS ANGELES	2024 T7 tractor construc	Aggregated	Aggregated	DSL	3767.089352	256507.7642	17030.864	35.9032936
LOS ANGELES	2024 T7 utility	Aggregated	Aggregated	DSL	414.5877733	8411.347954	4767.7594	1.31507403
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	DSL	31.1389	4437.958414	124.5556	0.66611894
LOS ANGELES	2024 LDA	Aggregated	Aggregated	ELEC	108760.0057	4606816.53	541506.48	0
LOS ANGELES	2024 LDT1	Aggregated	Aggregated	ELEC	5956.425776	258843.1671	29864.61	0
LOS ANGELES	2024 LDT2	Aggregated	Aggregated	ELEC	22868.95176	716376.6957	115104.59	0
LOS ANGELES	2024 MDV	Aggregated	Aggregated	ELEC	13797.5581	444370.1962	70078.957	0
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	ELEC	14	1217.553685	56	0
LOS ANGELES	2024 LDA	Aggregated	Aggregated	GAS	4116236.085	153254097	19419688	4812.00177
LOS ANGELES	2024 LDT1	Aggregated	Aggregated	GAS	494837.5912	18036183.16	2293057.3	658.905526
LOS ANGELES	2024 LDT2	Aggregated	Aggregated	GAS	1446244.823	53548483.34	6797962.9	2061.5571
LOS ANGELES	2024 LHD1	Aggregated	Aggregated	GAS	107107.329	3837942.251	1595739.6	359.289584
LOS ANGELES	2024 LHD2	Aggregated	Aggregated	GAS	18386.11912	636642.4367	273925.78	68.4369902
LOS ANGELES	2024 MCY	Aggregated	Aggregated	GAS	194917.9854	1339730.795	389835.97	37.6839165
LOS ANGELES	2024 MDV	Aggregated	Aggregated	GAS	960343.1935	33066846	4461450.5	1570.66085
LOS ANGELES	2024 MH	Aggregated	Aggregated	GAS	19619.12788	198262.4986	1962.6976	37.5139319
LOS ANGELES	2024 OBUS	Aggregated	Aggregated	GAS	4013.566193	160611.9813	80303.432	31.281714
LOS ANGELES	2024 SBUS	Aggregated	Aggregated	GAS	1602.639267	63772.44869	6410.5571	6.78677828
LOS ANGELES	2024 T6TS	Aggregated	Aggregated	GAS	14933.06448	821324.3121	298780.75	157.932265
LOS ANGELES	2024 T7IS	Aggregated	Aggregated	GAS	52.34072203	6205.870846	1047.2332	1.4394487
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	GAS	469.2067601	33977.63894	1876.827	7.37797617
LOS ANGELES	2024 T7 SWCV	Aggregated	Aggregated	NG	2967.934822	120873.8865	11574.946	52.347979
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	NG	4233.317372	448601.2989	16933.269	114.105429

Table 1. Summary of Energy Use During Construction

Fuel Type	Quantity
Diesel	
On-Site Construction Equipment	64,036 Gallons
Off-Site Motor Vehicles	55,946 Gallons
<i>Total</i>	<i>119,982 Gallons</i>
Gasoline	
On-Site Construction Equipment	0 Gallons
Off-Site Motor Vehicles	53,346 Gallons
<i>Total</i>	<i>53,346 Gallons</i>
Electricity	
<i>Total</i>	<i>1,086.9 kWh</i>

Table 2. Summary of Annual Energy Use During Operation		
Source	Units	Buildout
Electricity		
Apartments	kWh/yr	999,432
Retail	kWh/yr	339,820
Total Building	kWh/yr	1,339,252
Water	kWh/yr	328,000
<i>Total</i>	<i>kWh/yr</i>	<i>1,667,252</i>
Natural Gas		
Apartments	kBTU/yr	3,488,780
Retail	kBTU/yr	42,380
<i>Total</i>	<i>kBTU/yr</i>	<i>3,531,160</i>
Transportation/On-Site Sources		
Diesel	gallons	40,241
Gasoline	gallons	218,547
<i>Total</i>	<i>gallons</i>	<i>258,787</i>

Table 3. Water by Land Use				
Land Use	Units	Indoor/Outdoor Use	Indoor Use	Outdoor Use
Buildout	Mgal	15.45761 / 11.40648	15.45761	11.40648

Water and Wastewater Electricity Intensity (kWh/gallon)

Supply Water	0.009727
Treat Water	0.000111
Distribute Water	0.001272
Wastewater Treatment	0.001911

Source: CalEEMod User's Guide, Appendix D, Table 9.2 Los Angeles - South Coast

Indoor Water Factor	0.013021 kWh/gallon (supply, treat, distribute, wastewater treatment)
Outdoor Water Factor	0.01111 kWh/gallon (supply, treat, and distribute)

Notes:

Electricity and Natural Gas for the Proposed Project is total operational usage.
Electricity, natural gas, and mobile usage was calculated from CalEEMod. Indoor water factor used for entire Project Site for conservative analysis.

Table 4. Off-Road Equipment Fuel Usage During Construction

Phase Name	Off-road Equipment Type	Amount	Hours per Day	Horsepower	Load Factor	Number of Days	Diesel Fuel Usage
							(Gallons per Project)
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	10	1,186
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	10	574
Grading	Excavators	1	8	158	0.38	22	528
Grading	Graders	1	8	187	0.41	22	675
Grading	Rubber Tired Dozers	1	8	247	0.4	22	869
Grading	Tractors/Loaders/Backhoes	3	8	97	0.37	22	947
Building Construction	Cranes	1	7	231	0.29	488	11,442
Building Construction	Forklifts	3	8	89	0.2	488	10,424
Building Construction	Generator Sets	1	8	84	0.74	488	12,134
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	488	18,390
Building Construction	Welders	1	8	46	0.45	488	4,041
Paving	Pavers	2	8	130	0.42	22	961
Paving	Paving Equipment	2	8	132	0.36	22	836
Paving	Rollers	2	8	80	0.38	22	535
Architectural Coating	Air Compressors	1	6	78	0.48	44	494
Total							64,036

Notes:

Equipment assumptions from CalEEMod.

Fuel usage estimate of 0.05 gallons per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3 E.

Table 5. On-Road Vehicle Fuel Usage During Construction

Sub Area 1	Days	Daily Trips		Total			Trip Length (Miles)			Total Length (Miles)			Fuel Consumption (Gallons)	
		Worker	Vendor	Worker Trips	Vendor Trips	Haul Trips	Worker	Vendor	Hauling	Worker	Vendor	Hauling	Gasoline	Diesel
Site Prep	10	18	0	180	0	0	14.7	6.9	20	2,646	0	0	95	70
Grading	22	15	0	330	0	0	14.7	6.9	20	4,851	0	0	175	128
Building Construction	488	201	33	98,088	16,104	0	14.7	6.9	20	1,441,894	111,118	0	51,969	54,935
Architectural Coating	44	40	0	1,760	0	0	14.7	6.9	20	25,872	0	0	932	684
Paving	22	15	0	330	0	0	14.7	6.9	20	4,851	0	0	175	128
Total	586	289	33	100,688	16,104	0	n/a	n/a	n/a	1,480,114	111,118	0	53,346	55,946

Fuel Efficiency	Gas	DSL
Workers	27.75	37.81
Vendor/Haul Trucks	0	6.62

Notes:
 Fuel efficiency calculated in **Table 7: EMFAC2017 Results - Construction.**

Table 6. Water Usage for Control of Fugitive Dust During Construction			
Phase Name	Total Acres	Gallons for Project	Electricity (kWh)
Project	37.0	111,740	1,086.9

Notes:

Total acres graded based on CalEEMod output sheets.

Water Usage

3,020 gallons per acre per day

Source: Air & Waste Management Association, Air Pollution Engineering Manual, 1992 Edition

Supply Water Electricity Intensity

0.009727 kWh/gallons (CalEEMod default for South Coast Air Basin)

Table 7. EMFAC2017 Results - Construction								
Vehicle Class	Fuel	VMT (miles per day)	Fuel (1,000 gal per day)	Fuel Efficiency (miles per gallon)	Fuel	VMT (miles per day)	Fuel (1,000 gal per day)	Fuel Efficiency (miles per gallon)
LDA	GAS	154,312,637	5,096.55	30.28	DSL	1,405,949	29.72	47.31
LDT1	GAS	17,402,686	666.55	26.11	DSL	6,756	0.31	21.82
LDT2	GAS	52,851,239	2,173.39	24.32	DSL	384,253	11.04	34.80
Average (LDA, LDT1, LDT2)				27.75				37.81
T7 Tractor Construction	DSL	250,084	37.80	6.62				

Construction Worker Fleet Mix

LDA	50%
LDT1	25%
LDT2	25%

Vendor and Delivery/Haul Truck Fleet Mix

HHDT	100%
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EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: LOS ANGELES

Calendar Year: 2022

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	MdYr	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2022	LDA	Aggregated	Aggregated	GAS	4040504.833	154312636.5	19063483.35	5096.55014
LOS ANGELES	2022	LDA	Aggregated	Aggregated	DSL	35580.70761	1405948.594	168445.7609	29.71915281
LOS ANGELES	2022	LDA	Aggregated	Aggregated	ELEC	79346.01523	3237232.352	396260.3789	0
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	GAS	466456.294	17402686.02	2155709.822	666.5509097
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	DSL	276.3592923	6755.981354	979.1709586	0.309652997
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	ELEC	3550.873409	146697.1661	17760.7296	0
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	GAS	1395327.914	52851239.49	6550846.129	2173.392058
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	DSL	9029.025545	384253.17	44544.01587	11.04279173
LOS ANGELES	2022	T7 tractor constr	Aggregated	Aggregated	DSL	3625.325785	250084.1249	16389.95692	37.80397958
									8015.368685
									8015368.685
		Gas	7936.493108	7936493.108	2896819984	35,378,625.00		2,925,609,569.96	
		Diesel	78.87557712	78875.57712	28789585.65	10,548,851.00			
						45,927,476.00			

Table 8. On road Vehicles - Operational				
Scenario	Annual VMT	Fuel Consumption (gal)		
		Gasoline	Diesel	Total
Project	6,347,555	218,547	40,241	258,787

Table 9. Fuel Consumption Summary		
Fuel	Fuel Efficiency (MPG)	%Fleet
Gasoline	27.0	93.0%
Diesel	11.0	7.0%

Notes:

Percent fleet and fuel efficiency based on

Table 10: EMFAC2017 Emissions

Inventory-Operations

Annual VMT obtained from the CalEEMod Output files.

Table 10. EMFAC2017 Emissions Inventory - Operations				
Fuel	VMT (miles/day)	Fuel Consumption (1,000 gal/day)	Fuel Efficiency (miles per gallon)	Fuel Percentage
GAS	265,004,080	9,811	27.0	93
DSL	19,421,765	1,759	11.0	7
Natural Gas	569,475	166	3.4	3

Note: Fuel percentage based on VMT.

Fuel efficiency calculated using fuel consumption and VMT from EMFAC2017.

Buildout

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: LOS ANGELES

Calendar Year: 2024

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	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2024	All Other Buses	Aggregated	Aggregated	DSL	2550.285825	155192.9075	21422.401	14.5796828
LOS ANGELES	2024	LDA	Aggregated	Aggregated	DSL	39426.20875	1524143.418	187277.96	30.6996175
LOS ANGELES	2024	LDT1	Aggregated	Aggregated	DSL	239.6097239	5792.696626	847.72508	0.25937487
LOS ANGELES	2024	LDT2	Aggregated	Aggregated	DSL	10688.55158	433988.6515	52394.5	11.864706
LOS ANGELES	2024	LHD1	Aggregated	Aggregated	DSL	75659.92974	3110121.54	951706.74	138.91136
LOS ANGELES	2024	LHD2	Aggregated	Aggregated	DSL	30662.47325	1211866.91	385695.34	60.1253881
LOS ANGELES	2024	MDV	Aggregated	Aggregated	DSL	23435.64201	890977.0436	114506.06	31.4943213
LOS ANGELES	2024	MH	Aggregated	Aggregated	DSL	6733.817582	68909.9733	673.38176	6.37587215
LOS ANGELES	2024	Motor Coach	Aggregated	Aggregated	DSL	692.3865446	96422.70551	10108.844	14.2705799
LOS ANGELES	2024	PTO	Aggregated	Aggregated	DSL	0	80804.35604	0	15.4705344
LOS ANGELES	2024	SBUS	Aggregated	Aggregated	DSL	3919.441666	123729.7021	45229.813	15.9223254
LOS ANGELES	2024	T6 Ag	Aggregated	Aggregated	DSL	12.05761943	92.02238142	53.053525	0.01058727
LOS ANGELES	2024	T6 CAIRP heavy	Aggregated	Aggregated	DSL	364.8958628	69605.216	5327.4796	5.69918357
LOS ANGELES	2024	T6 CAIRP small	Aggregated	Aggregated	DSL	193.7506093	9851.189531	2828.7589	0.86629243
LOS ANGELES	2024	T6 instate construc	Aggregated	Aggregated	DSL	2676.133971	174496.7049	12098.698	16.1810011
LOS ANGELES	2024	T6 instate construc	Aggregated	Aggregated	DSL	8415.600524	462439.154	38046.603	42.4383142
LOS ANGELES	2024	T6 instate heavy	Aggregated	Aggregated	DSL	11424.50101	1542886.662	131837.16	132.172809
LOS ANGELES	2024	T6 instate small	Aggregated	Aggregated	DSL	40265.57798	2079152.747	464659.19	189.362079
LOS ANGELES	2024	T6 OOS heavy	Aggregated	Aggregated	DSL	211.2915399	40380.48061	3084.8565	3.30433425
LOS ANGELES	2024	T6 OOS small	Aggregated	Aggregated	DSL	110.7928558	5599.998854	1617.5757	0.49303644

LOS ANGELES	2024 T6 Public	Aggregated	Aggregated	DSL	4600.890676	72378.98569	13956.035	8.54313971
LOS ANGELES	2024 T6 utility	Aggregated	Aggregated	DSL	1042.333884	17403.55281	11986.84	1.73010193
LOS ANGELES	2024 T7 Ag	Aggregated	Aggregated	DSL	6.009096854	73.97272745	26.440026	0.01332593
LOS ANGELES	2024 T7 CAIRP	Aggregated	Aggregated	DSL	6457.8494	1175419.863	94284.601	161.593318
LOS ANGELES	2024 T7 CAIRP construct	Aggregated	Aggregated	DSL	685.8883869	125342.499	3100.8747	16.3107729
LOS ANGELES	2024 T7 NNOOS	Aggregated	Aggregated	DSL	7393.75045	1432863.068	107948.76	185.771721
LOS ANGELES	2024 T7 NOOS	Aggregated	Aggregated	DSL	2566.537268	461836.3912	37471.444	65.1552708
LOS ANGELES	2024 T7 POLA	Aggregated	Aggregated	DSL	8741.9427	1195541.843	66438.765	185.319426
LOS ANGELES	2024 T7 Public	Aggregated	Aggregated	DSL	5626.024305	113978.9385	17065.607	19.0275317
LOS ANGELES	2024 T7 Single	Aggregated	Aggregated	DSL	6194.688163	406946.8885	71485.843	58.2079548
LOS ANGELES	2024 T7 single constructi	Aggregated	Aggregated	DSL	4448.629899	310951.6857	20112.083	43.2689171
LOS ANGELES	2024 T7 SWCV	Aggregated	Aggregated	DSL	1153.829846	47142.48692	4499.9364	23.2245494
LOS ANGELES	2024 T7 tractor	Aggregated	Aggregated	DSL	13029.73414	1706073.809	165477.62	222.375482
LOS ANGELES	2024 T7 tractor construc	Aggregated	Aggregated	DSL	3767.089352	256507.7642	17030.864	35.9032936
LOS ANGELES	2024 T7 utility	Aggregated	Aggregated	DSL	414.5877733	8411.347954	4767.7594	1.31507403
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	DSL	31.1389	4437.958414	124.5556	0.66611894
LOS ANGELES	2024 LDA	Aggregated	Aggregated	ELEC	108760.0057	4606816.53	541506.48	0
LOS ANGELES	2024 LDT1	Aggregated	Aggregated	ELEC	5956.425776	258843.1671	29864.61	0
LOS ANGELES	2024 LDT2	Aggregated	Aggregated	ELEC	22868.95176	716376.6957	115104.59	0
LOS ANGELES	2024 MDV	Aggregated	Aggregated	ELEC	13797.5581	444370.1962	70078.957	0
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	ELEC	14	1217.553685	56	0
LOS ANGELES	2024 LDA	Aggregated	Aggregated	GAS	4116236.085	153254097	19419688	4812.00177
LOS ANGELES	2024 LDT1	Aggregated	Aggregated	GAS	494837.5912	18036183.16	2293057.3	658.905526
LOS ANGELES	2024 LDT2	Aggregated	Aggregated	GAS	1446244.823	53548483.34	6797962.9	2061.5571
LOS ANGELES	2024 LHD1	Aggregated	Aggregated	GAS	107107.329	3837942.251	1595739.6	359.289584
LOS ANGELES	2024 LHD2	Aggregated	Aggregated	GAS	18386.11912	636642.4367	273925.78	68.4369902
LOS ANGELES	2024 MCY	Aggregated	Aggregated	GAS	194917.9854	1339730.795	389835.97	37.6839165
LOS ANGELES	2024 MDV	Aggregated	Aggregated	GAS	960343.1935	33066846	4461450.5	1570.66085
LOS ANGELES	2024 MH	Aggregated	Aggregated	GAS	19619.12788	198262.4986	1962.6976	37.5139319
LOS ANGELES	2024 OBUS	Aggregated	Aggregated	GAS	4013.566193	160611.9813	80303.432	31.281714
LOS ANGELES	2024 SBUS	Aggregated	Aggregated	GAS	1602.639267	63772.44869	6410.5571	6.78677828
LOS ANGELES	2024 T6TS	Aggregated	Aggregated	GAS	14933.06448	821324.3121	298780.75	157.932265
LOS ANGELES	2024 T7IS	Aggregated	Aggregated	GAS	52.34072203	6205.870846	1047.2332	1.4394487
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	GAS	469.2067601	33977.63894	1876.827	7.37797617
LOS ANGELES	2024 T7 SWCV	Aggregated	Aggregated	NG	2967.934822	120873.8865	11574.946	52.347979
LOS ANGELES	2024 UBUS	Aggregated	Aggregated	NG	4233.317372	448601.2989	16933.269	114.105429

Table 1. Summary of Energy Use During Construction

Fuel Type	Quantity
Diesel	
On-Site Construction Equipment	23,377 Gallons
Off-Site Motor Vehicles	8,582 Gallons
<i>Total</i>	<i>31,959 Gallons</i>
Gasoline	
On-Site Construction Equipment	0 Gallons
Off-Site Motor Vehicles	8,382 Gallons
<i>Total</i>	<i>8,382 Gallons</i>
Electricity	
<i>Total</i>	<i>793.1 kWh</i>

Table 2. Summary of Annual Energy Use During Operation		
Source	Units	Buildout
Electricity		
Apartments	kWh/yr	336,887
Total Building	kWh/yr	336,887
Water	kWh/yr	117,425
<i>Total</i>	<i>kWh/yr</i>	<i>454,312</i>
Natural Gas		
Apartments	kBTU/yr	1,175,990
<i>Total</i>	<i>kBTU/yr</i>	<i>1,175,990</i>
Transportation/On-Site Sources		
Diesel	gallons	13,836
Gasoline	gallons	75,522
<i>Total</i>	<i>gallons</i>	<i>89,358</i>

Table 3. Water by Land Use				
Land Use	Units	Indoor/Outdoor Use	Indoor Use	Outdoor Use
Buildout	Mgal	5.86386 / 3.69678	5.86386	3.69678

Water and Wastewater Electricity Intensity (kWh/gallon)

Supply Water	0.009727
Treat Water	0.000111
Distribute Water	0.001272
Wastewater Treatment	0.001911

Source: CalEEMod User's Guide, Appendix D, Table 9.2 Los Angeles - South Coast

Indoor Water Factor	0.013021 kWh/gallon (supply, treat, distribute, wastewater treatment)
Outdoor Water Factor	0.01111 kWh/gallon (supply, treat, and distribute)

Notes:

Electricity and Natural Gas for the Proposed Project is total operational usage.
Electricity, natural gas, and mobile usage was calculated from CalEEMod. Indoor water factor used for entire Project Site for conservative analysis.

Table 4. Off-Road Equipment Fuel Usage During Construction

Phase Name	Off-road Equipment Type	Amount	Hours per Day	Horsepower	Load Factor	Number of Days	Diesel Fuel Usage
							(Gallons per Project)
Site Preparation	Graders	1	8	187	0.41	5	153
Site Preparation	Rubber Tired Dozers	1	7	247	0.4	5	173
Site Preparation	Tractors/Loaders/Backhoes	1	8	97	0.37	5	72
Grading	Graders	1	8	187	0.41	22	675
Grading	Rubber Tired Dozers	1	8	247	0.4	22	869
Grading	Tractors/Loaders/Backhoes	2	7	97	0.37	22	553
Building Construction	Cranes	1	6	231	0.29	233	4,683
Building Construction	Forklifts	1	6	89	0.2	233	1,244
Building Construction	Generator Sets	1	8	84	0.74	233	5,793
Building Construction	Tractors/Loaders/Backhoes	1	6	97	0.37	233	2,509
Building Construction	Welders	3	8	46	0.45	233	5,788
Architectural Coating	Air Compressors	1	6	78	0.48	22	247
Paving	Cement and Mortar Mixers	1	6	9	0.56	10	15
Paving	Pavers	1	6	130	0.42	10	164
Paving	Paving Equipment	1	8	132	0.36	10	190
Paving	Rollers	1	7	80	0.38	10	106
Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	10	144
Total							23,377

Notes:

Equipment assumptions from CalEEMod.

Fuel usage estimate of 0.05 gallons per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3 E.

Table 5. On-Road Vehicle Fuel Usage During Construction

Sub Area 1	Days	Daily Trips		Total			Trip Length (Miles)			Total Length (Miles)			Fuel Consumption (Gallons)	
		Worker	Vendor	Worker Trips	Vendor Trips	Haul Trips	Worker	Vendor	Hauling	Worker	Vendor	Hauling	Gasoline	Diesel
Site Prep	5	8	0	40	0	0	14.7	6.9	20	588	0	0	21	16
Grading	22	10	0	220	0	0	14.7	6.9	20	3,234	0	0	117	86
Building Construction	233	65	10	15,145	2,330	0	14.7	6.9	20	222,632	16,077	0	8,024	8,319
Architectural Coating	22	13	0	286	0	0	14.7	6.9	20	4,204	0	0	152	111
Paving	10	13	0	130	0	0	14.7	6.9	20	1,911	0	0	69	51
Total	292	109	10	15,821	2,330	0	n/a	n/a	n/a	232,569	16,077	0	8,382	8,582

Fuel Efficiency	Gas	DSL
Workers	27.75	37.81
Vendor/Haul Trucks	0	6.62

Notes:
 Fuel efficiency calculated in **Table 7: EMFAC2017 Results - Construction.**

Table 6. Water Usage for Control of Fugitive Dust During Construction			
Phase Name	Total Acres	Gallons for Project	Electricity (kWh)
Project	27.0	81,540	793.1

Notes:

Total acres graded based on CalEEMod output sheets.

Water Usage

3,020 gallons per acre per day

Source: Air & Waste Management Association, Air Pollution Engineering Manual, 1992 Edition

Supply Water Electricity Intensity

0.009727 kWh/gallons (CalEEMod default for South Coast Air Basin)

Table 7. EMFAC2017 Results - Construction								
Vehicle Class	Fuel	VMT (miles per day)	Fuel (1,000 gal per day)	Fuel Efficiency (miles per gallon)	Fuel	VMT (miles per day)	Fuel (1,000 gal per day)	Fuel Efficiency (miles per gallon)
LDA	GAS	154,312,637	5,096.55	30.28	DSL	1,405,949	29.72	47.31
LDT1	GAS	17,402,686	666.55	26.11	DSL	6,756	0.31	21.82
LDT2	GAS	52,851,239	2,173.39	24.32	DSL	384,253	11.04	34.80
Average (LDA, LDT1, LDT2)				27.75				37.81
T7 Tractor Construction	DSL	250,084	37.80	6.62				

Construction Worker Fleet Mix

LDA	50%
LDT1	25%
LDT2	25%

Vendor and Delivery/Haul Truck Fleet Mix

HHDT	100%
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EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: LOS ANGELES

Calendar Year: 2022

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	MdIYr	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2022	LDA	Aggregated	Aggregated	GAS	4040504.833	154312636.5	19063483.35	5096.55014
LOS ANGELES	2022	LDA	Aggregated	Aggregated	DSL	35580.70761	1405948.594	168445.7609	29.71915281
LOS ANGELES	2022	LDA	Aggregated	Aggregated	ELEC	79346.01523	3237232.352	396260.3789	0
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	GAS	466456.294	17402686.02	2155709.822	666.5509097
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	DSL	276.3592923	6755.981354	979.1709586	0.309652997
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	ELEC	3550.873409	146697.1661	17760.7296	0
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	GAS	1395327.914	52851239.49	6550846.129	2173.392058
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	DSL	9029.025545	384253.17	44544.01587	11.04279173
LOS ANGELES	2022	T7 tractor constr	Aggregated	Aggregated	DSL	3625.325785	250084.1249	16389.95692	37.80397958
									8015.368685
									8015368.685
		Gas	7936.493108	7936493.108	2896819984	35,378,625.00		2,925,609,569.96	
		Diesel	78.87557712	78875.57712	28789585.65	10,548,851.00			
						45,927,476.00			

Table 8. On road Vehicles - Operational				
Scenario	Annual VMT	Fuel Consumption (gal)		
		Gasoline	Diesel	Total
Project	2,140,065	75,522	13,836	89,358

Table 9. Fuel Consumption Summary		
Fuel	Fuel Efficiency (MPG)	%Fleet
Gasoline	26.4	93.0%
Diesel	10.8	7.0%

Notes:

Percent fleet and fuel efficiency based on

Table 10: EMFAC2017 Emissions

Inventory-Operations

Annual VMT obtained from the CalEEMod Output files.

Table 10. EMFAC2017 Emissions Inventory - Operations				
Fuel	VMT (miles/day)	Fuel Consumption (1,000 gal/day)	Fuel Efficiency (miles per gallon)	Fuel Percentage
GAS	264,927,412	10,053	26.4	93
DSL	18,845,472	1,741	10.8	7
Natural Gas	559,310	163	3.4	3

Note: Fuel percentage based on VMT.

Fuel efficiency calculated using fuel consumption and VMT from EMFAC2017.

Buildout

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: LOS ANGELES

Calendar Year: 2023

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	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2023	All Other Buses	Aggregated	Aggregated	DSL	2453.780294	150763.0391	20611.754	14.3102964
LOS ANGELES	2023	LDA	Aggregated	Aggregated	DSL	37620.08952	1468847.201	178324.71	30.2306847
LOS ANGELES	2023	LDT1	Aggregated	Aggregated	DSL	257.6434833	6250.546569	911.04472	0.28261215
LOS ANGELES	2023	LDT2	Aggregated	Aggregated	DSL	9886.840992	410652.3194	48611.005	11.4787561
LOS ANGELES	2023	LHD1	Aggregated	Aggregated	DSL	71099.52621	2976582.9	894342.6	134.836452
LOS ANGELES	2023	LHD2	Aggregated	Aggregated	DSL	28768.3231	1158887.819	361869.31	58.2880015
LOS ANGELES	2023	MDV	Aggregated	Aggregated	DSL	21713.14607	843603.3965	106464.32	30.499951
LOS ANGELES	2023	MH	Aggregated	Aggregated	DSL	6442.422087	66663.72302	644.24221	6.25380248
LOS ANGELES	2023	Motor Coach	Aggregated	Aggregated	DSL	671.8209096	94677.5948	9808.5853	14.1077668
LOS ANGELES	2023	PTO	Aggregated	Aggregated	DSL	0	79942.02847	0	15.4668659
LOS ANGELES	2023	SBUS	Aggregated	Aggregated	DSL	3895.844354	123040.6457	44957.504	16.0165185
LOS ANGELES	2023	T6 Ag	Aggregated	Aggregated	DSL	11.67476155	97.073849	51.368951	0.0110802
LOS ANGELES	2023	T6 CAIRP heavy	Aggregated	Aggregated	DSL	349.6383777	68307.70048	5104.7203	5.74152969
LOS ANGELES	2023	T6 CAIRP small	Aggregated	Aggregated	DSL	184.7839559	9654.963816	2697.8458	0.8645498
LOS ANGELES	2023	T6 instate construc	Aggregated	Aggregated	DSL	2618.326334	172411.6153	11837.352	16.1624662
LOS ANGELES	2023	T6 instate construc	Aggregated	Aggregated	DSL	8139.325817	456545.5656	36797.576	42.3939241
LOS ANGELES	2023	T6 instate heavy	Aggregated	Aggregated	DSL	10786.51244	1499120.793	124474.86	130.47955
LOS ANGELES	2023	T6 instate small	Aggregated	Aggregated	DSL	38175.77868	2025192.578	440543.19	186.745695
LOS ANGELES	2023	T6 OOS heavy	Aggregated	Aggregated	DSL	202.1917854	39591.65831	2952.0001	3.32562707
LOS ANGELES	2023	T6 OOS small	Aggregated	Aggregated	DSL	105.7912941	5491.948334	1544.5529	0.4922964

LOS ANGELES	2023 T6 Public	Aggregated	Aggregated	DSL	4562.406266	71552.48965	13839.299	8.60435221
LOS ANGELES	2023 T6 utility	Aggregated	Aggregated	DSL	1029.350505	17254.27294	11837.531	1.75155867
LOS ANGELES	2023 T7 Ag	Aggregated	Aggregated	DSL	5.450542727	89.56607012	23.982388	0.01574504
LOS ANGELES	2023 T7 CAIRP	Aggregated	Aggregated	DSL	6343.347191	1154320.568	92612.869	161.461909
LOS ANGELES	2023 T7 CAIRP construct	Aggregated	Aggregated	DSL	679.1643287	123844.761	3070.4755	16.390596
LOS ANGELES	2023 T7 NNOOS	Aggregated	Aggregated	DSL	7121.061939	1407158.417	103967.5	187.176984
LOS ANGELES	2023 T7 NOOS	Aggregated	Aggregated	DSL	2513.987908	453542.0471	36704.223	65.0452228
LOS ANGELES	2023 T7 POLA	Aggregated	Aggregated	DSL	8519.119436	1135875.96	64745.308	176.124541
LOS ANGELES	2023 T7 Public	Aggregated	Aggregated	DSL	5566.242618	112766.4506	16884.269	19.1172428
LOS ANGELES	2023 T7 Single	Aggregated	Aggregated	DSL	6149.267846	402604.0345	70961.698	58.130993
LOS ANGELES	2023 T7 single constructi	Aggregated	Aggregated	DSL	4427.380162	307236.0732	20016.014	43.2796885
LOS ANGELES	2023 T7 SWCV	Aggregated	Aggregated	DSL	1267.904477	51803.41871	4944.8275	25.530032
LOS ANGELES	2023 T7 tractor	Aggregated	Aggregated	DSL	12343.86745	1684212.129	156767.12	222.039606
LOS ANGELES	2023 T7 tractor construc	Aggregated	Aggregated	DSL	3720.516306	253442.7111	16820.31	35.8399978
LOS ANGELES	2023 T7 utility	Aggregated	Aggregated	DSL	410.896106	8338.939625	4725.3052	1.31476872
LOS ANGELES	2023 UBUS	Aggregated	Aggregated	DSL	37.1389	5105.145298	148.5556	0.80713293
LOS ANGELES	2023 LDA	Aggregated	Aggregated	ELEC	93246.42895	3877173.285	464969.64	0
LOS ANGELES	2023 LDT1	Aggregated	Aggregated	ELEC	4694.098206	199559.1454	23532.522	0
LOS ANGELES	2023 LDT2	Aggregated	Aggregated	ELEC	18529.7361	593086.5511	93526.447	0
LOS ANGELES	2023 MDV	Aggregated	Aggregated	ELEC	10527.8392	347358.5519	53662.769	0
LOS ANGELES	2023 UBUS	Aggregated	Aggregated	ELEC	14	1217.553685	56	0
LOS ANGELES	2023 LDA	Aggregated	Aggregated	GAS	4079718.343	153812691.8	19249547	4943.66007
LOS ANGELES	2023 LDT1	Aggregated	Aggregated	GAS	480759.8328	17733493.57	2225422.9	661.890074
LOS ANGELES	2023 LDT2	Aggregated	Aggregated	GAS	1420577.957	53205335.05	6674512.8	2111.83515
LOS ANGELES	2023 LHD1	Aggregated	Aggregated	GAS	107353.7456	3873368.206	1599410.9	366.240002
LOS ANGELES	2023 LHD2	Aggregated	Aggregated	GAS	18246.17882	636806.1143	271840.88	69.1165959
LOS ANGELES	2023 MCY	Aggregated	Aggregated	GAS	188536.3972	1317299.67	377072.79	36.8471368
LOS ANGELES	2023 MDV	Aggregated	Aggregated	GAS	951148.1238	33069618.91	4413707.2	1617.67266
LOS ANGELES	2023 MH	Aggregated	Aggregated	GAS	19632.08957	198292.6633	1963.9942	38.1180307
LOS ANGELES	2023 OBUS	Aggregated	Aggregated	GAS	4020.759353	164000.6212	80447.353	32.3899635
LOS ANGELES	2023 SBUS	Aggregated	Aggregated	GAS	1498.084511	60378.45107	5992.338	6.5052723
LOS ANGELES	2023 T6TS	Aggregated	Aggregated	GAS	14791.98296	816335.0055	295958	159.420823
LOS ANGELES	2023 T7IS	Aggregated	Aggregated	GAS	53.11282542	6012.489383	1062.6814	1.42846593
LOS ANGELES	2023 UBUS	Aggregated	Aggregated	GAS	466.4659792	33779.50019	1865.8639	7.76462999
LOS ANGELES	2023 T7 SWCV	Aggregated	Aggregated	NG	2800.075382	114024.8235	10920.294	50.2408577
LOS ANGELES	2023 UBUS	Aggregated	Aggregated	NG	4202.367788	445285.1383	16809.471	113.219219