

APPENDIX D

Energy Output Calculation

Table 1. Summary of Energy Use During Construction

Fuel Type	Quantity
Diesel	
On-Site Construction Equipment	188,424 Gallons
Off-Site Motor Vehicles	95,541 Gallons
Total	283,965 Gallons
Gasoline	
On-Site Construction Equipment	0 Gallons
Off-Site Motor Vehicles	77,095 Gallons
Total	77,095 Gallons
Electricity	29,528.7 kWh

Table 2. Summary of Annual Energy Use During Operation

Source	Units	Buildout	Existing
Electricity	kWh/yr		
Residential	kWh/yr	1,543,300	
Retail	kWh/yr	510,156	
Total Building	kWh/yr	2,053,456	
Water	kWh/yr	372,765	
Total Electricity	kWh/yr	2,426,221	
Natural Gas			
Residential	kBTU/yr	3,344,240	
Retail	kBTU/yr	57,804	
Total	kBTU/yr	3,402,044	
Transportation/On-Site Sources			
Diesel	gallons	56,896	
Gasoline	gallons	313,743	
Total	gallons	370,639	

Table 3. Water by Land Use

"Regulatory Compliance"

Land Use	Units	Project		
		Indoor/Outdoor Use	Indoor Use	Outdoor Use
Buildout	Mgal		16.87766	13.77146
Residential	Mgal	15.1201/12.3732	15.1201	12.3732
Retail	Mgal	1.75756/1.39826	1.75756	1.39826

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 County - Los Angeles-South Co

Indoor Water Factor	0.013021 kWh/gallon (supply, treat, distribute, wastewater treatme
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 in **Appendix F** of the EIR. 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
Project Site					
Demolition	Air Compressors	1	8	78	0.48
Demolition	Bore/Drill Rigs	2	6	221	0.5
Demolition	Concrete/Industrial Saws	2	8	81	0.73
Demolition	Crushing/Proc. Equipment	1	6	85	0.78
Demolition	Excavators	1	8	158	0.38
Demolition	Generator Sets	1	6	84	0.74
Demolition	Other Construction Equipment	2	6	172	0.42
Demolition	Rubber Tired Loaders	1	6	203	0.36
Grading	Dumpers/Tenders	2	6	16	0.38
Grading	Excavators	4	8	158	0.38
Grading	Graders	2	8	187	0.41
Grading	Plate Compactors	2	6	8	0.43
Grading	Skid Steer Loaders	2	6	65	0.37
Grading	Tractors/Loaders/Backhoes	2	8	97	0.37
Grading	Trenchers	2	6	78	0.5
Building Construction	Air Compressors	8	7	78	0.48
Building Construction	Bore/Drill Rigs	2	6	221	0.5
Building Construction	Cement and Mortar Mixers	12	6	9	0.56
Building Construction	Cranes	2	7	231	0.29
Building Construction	Forklifts	4	8	89	0.2
Building Construction	Generator Sets	2	8	84	0.74
Building Construction	Other General Industrial Equip	2	6	88	0.34
Building Construction	Tractors/Loaders/Backhoes	2	6	97	0.37
Architectural Coating	Air Compressors	1	6	78	0.48
Paving	Air Compressors	2	6	78	0.48

Table 5. On-Road Vehicle Fuel Usage During Construction

Long Beach River Park	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	45	28	0		1,260	0	1,829	14.7	6.9	20	18,522	0	36,580	686	6,190
Grading	40	40	0		1,600	0	3,362	14.7	6.9	20	23,520	0	67,240	872	11,093
Building Construction	429	302	50		129,558	21,450	0	14.7	6.9	20	1,904,503	148,005	0	70,585	74,636
Architectural Coating	89	60	0		5,340	0	0	14.7	6.9	20	78,498	0	0	2,909	2,128
Paving	75	50	0		3,750	0	0	14.7	6.9	20	55,125	0	0	2,043	1,494
Total	678	480	50		141,508	21,450	5,191	n/a	n/a	n/a	2,080,168	148,005	103,820	77,095	95,541

Fuel Efficiency	Gas	DSL											Total	77,095	95,541
Workers	26.98	36.89													
Vendor/Haul Trucks	0	6.43													

Notes:
 Fuel efficiency calculated in Table 10: EMFAC2017 Results - Construction.

Table 6. Water Usage for Control of Fugitive Dust During Construction

Phase Name	Square Feet	Acres	Gallons for Project	Electricity (kWh)
Project	182,447	4.2	3,035,749	29,528.7

Notes:

Total disturbed acreage for demolition Project Site area. Total disturbed acreage for site preparation through architectural coating per CalEEMod for proposed Project.

Construction Schedule

5 days per week
20 days per month
240 days per year

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)
43,560.00 sf to acres

Table 10. 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	154,957,028	5,253.04	29.50	DSL	1,336,170	29.00	46.08
LDT1	GAS	17,065,391	670.36	25.46	DSL	7,338	0.34	21.57
LDT2	GAS	52,553,142	2,238.86	23.47	DSL	355,535	10.51	33.84
Average (LDA, LDT1, LDT2)				26.98				36.89
T7 Tractor Construction	DSL	246,432	38.32	6.43				

Construction Worker Fleet Mix

LDA	50%
LDT1	25%
LDT2	25%

Vendor and Delivery/Haul Truck Fleet Mix

HHDT	100%
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EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: Air District

Region: Antelope Valley AQMD

Calendar Year: 2021

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	2021	LDA	Aggregated	Aggregated	GAS	3998082.55	154957028.3	18859046.25	5253.036076
Los Angeles	2021	LDA	Aggregated	Aggregated	DSL	33364.94911	1336170.355	157695.7088	28.995514
Los Angeles	2021	LDA	Aggregated	Aggregated	ELEC	67210.71775	2697315.265	336259.3563	0
Los Angeles	2021	LDT1	Aggregated	Aggregated	GAS	451923.1455	17065391.26	2083892.52	670.3612556
Los Angeles	2021	LDT1	Aggregated	Aggregated	DSL	297.0410267	7338.123275	1055.645987	0.340197438
Los Angeles	2021	LDT1	Aggregated	Aggregated	ELEC	2539.277034	100849.3946	12618.75756	0
Los Angeles	2021	LDT2	Aggregated	Aggregated	GAS	1370275.92	52553142.22	6426189.155	2238.862589
Los Angeles	2021	LDT2	Aggregated	Aggregated	DSL	8126.390234	355535.4183	40234.87001	10.50575614
Los Angeles	2021	LDT2	Aggregated	Aggregated	ELEC	11051.44449	368949.9062	56028.93957	0
Los Angeles	2021	T7 tractor const	Aggregated	Aggregated	DSL	3547.888701	246432.0056	16039.86688	38.32018639
									8240.421574
									8240421.574
		Gas		8162.25992	8162259.92	2979224871		3,007,753,874.51	
		Diesel		39.84146758	39841.46758	14542135.67			
		Electricity		0	0	0			

Table 7. On road Vehicles - Operational

Scenario	Annual VMT	Fuel Consumption (gal)		
		Gasoline	Diesel	Total
Existing	0	0	0	0
Unmitigated	9,058,935	313,743	56,896	370,639
Mitigated	9,058,935	313,743	56,896	370,639

Table 8. Fuel Consumption Summary

Fuel	Fuel Efficiency (MPG)	%Fleet	%Existing
Gasoline	26.9	93.0%	0.0%
Diesel	10.8	6.8%	0.0%
Natural Gas	3.4	0.2%	0.0%

Notes:

Percent fleet based on VMT from EMFAC2017 as shown in

Table 9: EMFAC2017 Emissions Inventory-Operations

Annual VMT obtained from the CalEEMod Output files in

Appendix F.

Fuel efficiency based on calculations in **Table 9:**

EMFAC2017 Emissions Inventory-Operations, from

EMFAC2017.

Table 9. EMFAC2017 Emissions Inventory - Operations

Fuel	VMT (miles/day)	Fuel Consumption (1,000 gal/day)	Fuel Efficiency (miles per gallon)	Fuel Percentage
GAS	269,945,807	10,053	26.9	93.3
DSL	18,845,472	1,741	10.8	6.5
Natural Gas	559,310	163	3.4	0.2

Note: Fuel percentage based on VMT.

Fuel efficiency calculated using fuel consumption and VMT from EMFAC2017.

Buildout

EMFAC2017 (v1.0.2) Emission Rates

Region Type: County

Region: Los Angeles

Calendar Year: 2023

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT
Los Angeles	2023	All Other Buses	Aggregated	Aggregated	DSL	2453.780294	150763.0391
Los Angeles	2023	LDA	Aggregated	Aggregated	DSL	37620.08952	1468847.201
Los Angeles	2023	LDT1	Aggregated	Aggregated	DSL	257.6434833	6250.546569
Los Angeles	2023	LDT2	Aggregated	Aggregated	DSL	9886.840992	410652.3194
Los Angeles	2023	LHD1	Aggregated	Aggregated	DSL	71099.52621	2976582.9
Los Angeles	2023	LHD2	Aggregated	Aggregated	DSL	28768.3231	1158887.819
Los Angeles	2023	MDV	Aggregated	Aggregated	DSL	21713.14607	843603.3965
Los Angeles	2023	MH	Aggregated	Aggregated	DSL	6442.422087	66663.72302
Los Angeles	2023	Motor Coach	Aggregated	Aggregated	DSL	671.8209096	94677.5948
Los Angeles	2023	PTO	Aggregated	Aggregated	DSL	0	79942.02847