

Appendix 4

Energy Calculations

Curtis School

Summary of Energy Use During Construction

Electricity	
Water Consumption	2,415 kWh
Temporary Power (lighting, tools)	9,828 kWh
Total:	12,243 kWh
Gasoline	
On Road	8,469 Gallons
Off Road	0 Gallons
Total:	8,469 Gallons
Diesel	
On Road	36,618 Gallons
Off Road	102,353 Gallons
Total:	138,972 Gallons
Total Mobile	147,440

Summary of Energy Use During Operations

	Baseline (Buildout)	Buildout Without Project Features	Buildout With Project Features	Percent Reduction	Project (Buildout - Baseline (Buildout))
Electricity					
Electricity (building)	0	362,346	362,346 kWh/year	0%	362,346
Electricity (water)	0	62,775	62,775 kWh/year	0%	62,775
EV Chargers		159,200	159,200 kWh/year		159,200
Electricity Total	0	584,320	584,320 kWh/year	0%	584,320
Natural Gas	0	593,592	593,592 cu ft/year	0%	593,592
Mobile					
Gasoline	0	18,359	18,359 Gallons/year	0%	18,360
Diesel	0	3,195	3,195 Gallons/year	0%	3,195
Mobile Total	0	21,554	21,554 Gallons/year	0%	21,554

2,155.40

Construction Electricity Usage

Construction Electricity Usage

Caterpillar 40-C4.4 Generator^a

Peak Power Rating - Prime (kW)	36
Typical Load	70%
Average Output (kW)	25.2
Hours per Day	2
Average Daily Output (kWh)	50.4
Building Construction Phase Duration (days)	195
Total Construction (kWh)	9,828
Total Construction (MWh)	9.8

^a<https://www.albancat.com/content/uploads/2014/06/40-C4.4-Spec-Sheet.pdf>

Calculation of Diesel Usage During Construction (Offroad Equipment):

Phase Name	Off Road Equipment Type	Units	Hours	HP	Load Factor	Avg. Daily Factor	Number of Days	Diesel Fuel Usage	
Phase 1-Demolition	Concrete/Industrial Saws	3	8	81	0.73	0.6	21	894	
Phase 1-Demolition	Other Construction Equipment	1	8	172	0.42	0.6	21	364	
Phase 1-Demolition	Rough Terrain Forklifts	2	8	100	0.4	0.6	21	403	
Phase 1-Demolition	Rubber Tired Dozers	1	8	247	0.4	0.6	21	498	
Phase 1-Demolition	Rubber Tired Loaders	1	8	203	0.36	0.6	21	368	
Phase 1-Demolition	Tractors/Loaders/Backhoes	2	8	97	0.37	0.6	21	362	
Phase 1-Grading	Excavators	2	8	158	0.38	0.6	22	634	
Phase 1-Grading	Graders	0	6	187	0.41	0.6	22	0	
Phase 1-Grading	Other Construction Equipment	1	8	172	0.42	0.6	22	381	
Phase 1-Grading	Plate Compactors	2	8	8	0.43	0.6	22	36	
Phase 1-Grading	Rollers	1	8	80	0.38	0.6	22	161	
Phase 1-Grading	Rough Terrain Forklifts	1	8	100	0.4	0.6	22	211	
Phase 1-Grading	Rubber Tired Dozers	1	8	247	0.4	0.6	22	522	
Phase 1-Grading	Rubber Tired Loaders	2	8	203	0.36	0.6	22	772	
Phase 1-Foundation (Core&Shell)	Bore/Drill Rigs	1	8	221	0.5	0.6	88	2,334	
Phase 1-Foundation (Core&Shell)	Cement and Mortar Mixers	2	8	9	0.56	0.6	88	213	
Phase 1-Foundation (Core&Shell)	Cranes	2	4	231	0.29	0.6	88	1,415	
Phase 1-Foundation (Core&Shell)	Other Construction Equipment	1	8	172	0.42	0.6	88	1,526	
Phase 1-Foundation (Core&Shell)	Plate Compactors	3	8	8	0.43	0.6	88	218	
Phase 1-Foundation (Core&Shell)	Pumps	2	8	84	0.74	0.6	88	2,626	
Phase 1-Foundation (Core&Shell)	Rough Terrain Forklifts	1	8	100	0.4	0.6	88	845	
Phase 1-Foundation (Core&Shell)	Rubber Tired Dozers	0	7	247	0.4	0.6	88	0	
Phase 1-Foundation (Core&Shell)	Tractors/Loaders/Backhoes	1	8	97	0.37	0.6	88	758	
Phase 1-Foundation (Core&Shell)	Welders	2	8	46	0.45	0.6	88	874	
Phase 1-Building Construction	Air Compressors	2	8	78	0.48	0.6	173	3,109	
Phase 1-Building Construction	Cement and Mortar Mixers	2	8	9	0.56	0.6	173	419	
Phase 1-Building Construction	Forklifts	3	8	89	0.2	0.6	173	2,217	
Phase 1-Building Construction	Other Construction Equipment	2	8	172	0.42	0.6	173	5,999	
Phase 1-Building Construction	Skid Steer Loaders	2	8	65	0.37	0.6	173	1,997	
Phase 1-Building Construction	Tractors/Loaders/Backhoes	2	8	97	0.37	0.6	173	2,980	
Phase 1-Building Construction	Welders	3	8	46	0.45	0.6	173	2,578	
Phase 1-Architectural Coating	Air Compressors	0	6	78	0.48	0.6	88	0	
Phase 1-Paving	Cement and Mortar Mixers	2	8	9	0.56	0.6	22	53	
Phase 1-Paving	Concrete/Industrial Saws	1	4	81	0.73	0.6	22	156	
Phase 1-Paving	Excavators	1	8	158	0.38	0.6	22	317	
Phase 1-Paving	Paving Equipment	1	8	132	0.36	0.6	22	251	
Phase 1-Paving	Plate Compactors	2	8	8	0.43	0.6	22	36	
Phase 1-Paving	Rollers	1	8	80	0.38	0.6	22	161	
Phase 1-Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	0.6	22	189	
Phase 2-Demolition	Crushing/Proc. Equipment	2	8	85	0.78	0.6	21	668	
Phase 2-Demolition	Excavators	1	8	158	0.38	0.6	21	303	
Phase 2-Demolition	Other Construction Equipment	1	8	172	0.42	0.6	21	364	
Phase 2-Demolition	Rough Terrain Forklifts	1	8	100	0.4	0.6	21	202	
Phase 2-Demolition	Rubber Tired Dozers	1	8	247	0.4	0.6	21	498	
Phase 2-Demolition	Rubber Tired Loaders	1	8	203	0.36	0.6	21	368	
Phase 2-Grading	Bore/Drill Rigs	1	8	221	0.5	0.6	65	1,724	
Phase 2-Grading	Excavators	1	8	158	0.38	0.6	65	937	
Phase 2-Grading	Graders	0	8	187	0.41	0.6	65	0	
Phase 2-Grading	Other Construction Equipment	0	8	172	0.42	0.6	65	0	
Phase 2-Grading	Rubber Tired Dozers	1	8	247	0.4	0.6	65	1,541	
Phase 2-Grading	Scrapers	2	8	367	0.48	0.6	65	5,496	
Phase 2-Grading	Tractors/Loaders/Backhoes	2	7	97	0.37	0.6	65	980	
Phase 2-Foundation (Core&Shell)	Bore/Drill Rigs	2	8	221	0.5	0.6	89	4,721	
Phase 2-Foundation (Core&Shell)	Cement and Mortar Mixers	3	8	9	0.56	0.6	89	323	
Phase 2-Foundation (Core&Shell)	Graders	0	8	187	0.41	0.6	89	0	
Phase 2-Foundation (Core&Shell)	Other Construction Equipment	1	8	172	0.42	0.6	89	1,543	
Phase 2-Foundation (Core&Shell)	Plate Compactors	4	8	8	0.43	0.6	89	294	
Phase 2-Foundation (Core&Shell)	Pumps	2	8	84	0.74	0.6	89	2,655	
Phase 2-Foundation (Core&Shell)	Rough Terrain Forklifts	2	8	100	0.4	0.6	89	1,709	
Phase 2-Foundation (Core&Shell)	Scrapers	0	8	367	0.48	0.6	89	0	
Phase 2-Foundation (Core&Shell)	Skid Steer Loaders	2	8	65	0.37	0.6	89	1,027	
Phase 2-Foundation (Core&Shell)	Tractors/Loaders/Backhoes	1	7	97	0.37	0.6	89	671	
Phase 2-Building Construction	Aerial Lifts	3	8	63	0.31	0.6	129	1,814	
Phase 2-Building Construction	Air Compressors	3	8	78	0.48	0.6	129	3,477	
Phase 2-Building Construction	Cement and Mortar Mixers	3	8	9	0.56	0.6	129	468	
Phase 2-Building Construction	Concrete/Industrial Saws	1	8	81	0.73	0.6	129	1,831	
Phase 2-Building Construction	Cranes	3	8	231	0.29	0.6	129	6,222	
Phase 2-Building Construction	Forklifts	4	8	89	0.2	0.6	129	2,204	
Phase 2-Building Construction	Generator Sets	0	8	84	0.74	0.6	129	0	
Phase 2-Building Construction	Other Construction Equipment	2	8	172	0.42	0.6	129	4,473	
Phase 2-Building Construction	Plate Compactors	5	8	8	0.43	0.6	129	533	
Phase 2-Building Construction	Tractors/Loaders/Backhoes	1	8	97	0.37	0.6	129	1,111	
Phase 2-Building Construction	Welders	3	8	46	0.45	0.6	129	1,923	
Phase 2-Architectural Coating	Air Compressors	0	6	78	0.48	0.6	88	0	
Phase 2-Paving	Cement and Mortar Mixers	4	8	9	0.56	0.6	22	106	
Phase 2-Paving	Concrete/Industrial Saws	1	8	81	0.73	0.6	22	312	
Phase 2-Paving	Excavators	1	8	158	0.38	0.6	22	317	
Phase 2-Paving	Graders	1	8	187	0.41	0.6	22	405	
Phase 2-Paving	Other Construction Equipment	1	8	172	0.42	0.6	22	381	
Phase 2-Paving	Pavers	2	8	130	0.42	0.6	22	577	
Phase 2-Paving	Paving Equipment	2	8	132	0.36	0.6	22	502	
Phase 2-Paving	Rollers	2	8	80	0.38	0.6	22	321	
Phase 2-Paving	Rubber Tired Dozers	1	8	247	0.4	0.6	22	522	
Phase 2-Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	0.6	22	189	
		0	0	0	0	0.6	0	0	
Total Diesel Usage for Construction (Offr								102,353.2	gallons of diesel fuel

gallons of diesel fuel per horsepower-hour=

0.05

Notes: Equipment assumptions are provide in the CalEEMod output files and fuel usage estimate of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

EMFAC2014 Emissions Inventory

Region Type: Air Basin

Region: South Coast

Calendar Year: 2018

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Region	Veh_Class	Fuel	Speed (miles/hr)	Population (vehicles)	VMT (miles/day)	Trips (trips/day)	Fuel_Gas (1000 gallons/day)	Fuel_DSL (1000 gallons/day)	Miles per Gallon
South Coast	LDA	GAS	Aggregate	5,988,375	244,387,128	28,234,116	8,758	0	27.9
South Coast	LDT1	GAS	Aggregate	631,267	24,197,112	2,876,472	1,010	0	24.0
South Coast	LDT2	GAS	Aggregate	2,039,985	80,591,142	9,524,984	3,741	0	21.5
Construction Worker Trip (Composite LDA/LDT1/LDT2):									25.3
South Coast	HHDT	DSL	Aggregate	89,461	10,725,243	885,703	0	1740.6	6.2

Notes: Consistent with CalEEMod, a construction worker trip is assumed to be a composite of 50% LDA , 25% for LDT1, and 25% for LDT2. Used EMFAC 2011 Categories for construction as EMFAC2011 has specific categories for vehicle class T7.

Calculation of Gasoline and Diesel Usage During Phase 1 Construction (Onroad Vehicles):

Phase Name	Daily Woker Trips	Daily Vendor Trips	Days	Total Worker Trips	Total Vendor Trips	Total Haul Trips	Trip Length (miles)			Total Length (miles)			Avg. Daily Factor (worker and vendor)	Gallons of Fuel	
							Worker	Vendor	Haul	Worker	Vendor	Haul		Gasoline	Diesel
Phase 1-Demolition	28	0	21	588	0	132	14.7	6.9	18	8643.6	0	2376	0.6	204.7	385.6
Phase 1-Grading	33	0	22	726	0	1540	14.7	6.9	18	10672.2	0	27720	0.6	252.8	4,498.6
Phase 1-Foundation(Core&Shell)	40	15	88	3520	1320	0	14.7	6.9	20	51744	9108	0	0.6	1,225.6	886.9
Phase 1-Building Construction	25	15	173	4325	2595	0	14.7	6.9	20	63577.5	17905.5	0	0.6	1,505.9	1,743.5
Phase 1-Architectural Coating	5	0	88	440	0	0	14.7	6.9	20	6468	0	0	0.6	153.2	0.0
Phase 1-Paving	30	15	22	660	330	0	14.7	6.9	20	9702	2277	0	0.6	229.8	221.7
Phase 2-Demolition	40	0	21	840	0	50	14.7	6.9	18	12348	0	900	0.6	292.5	146.1
Phase 2-Grading	30	0	65	1950	0	8780	14.7	6.9	18	28665	0	158040	0.6	679.0	25,648.0
Phase 2-Foundation(Core&Shell)	48	24	89	4272	2136	0	14.7	6.9	20	62798.4	14738.4	0	0.6	1,487.4	1,435.1
Phase 2-Building Construction	42	16	129	5418	2064	0	14.7	6.9	20	79644.6	14241.6	0	0.6	1,886.5	1,386.7
Phase 2-Architectural Coating	8	0	88	704	0	0	14.7	6.9	20	10348.8	0	0	0.6	245.1	0.0
Phase 2-Paving	40	18	22	880	396	0	14.7	6.9	20	12936	2732.4	0	0.6	306.4	266.1
Total:													8,468.9	36,618.4	

Worker Miles per gallon= 25.33 gasoline
 Vendor/Haul miles per gallon= 6.16 diesel

Notes: Consistent with CalEEMod worker vehicles are 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).

Water Usage for Control of Fugitive Dust during Construction:

Phase	Days	Average Daily Acreage Disturbed	Gallons Per Year	Electricity (kWhr)
Phase 1-Demolition	21	0.5	31,710	308
Phase 1-Grading	22	0.5	33,220	323
Phase 1-Foundation(Core&Shell)	88	0.1	26,576	259
Phase 1-Building Construction	173	0.0	0	0
Phase 1-Architectural Coating	88	0	0	0
Phase 1-Paving	22	0	0	0
Phase 2-Demolition	21	0.5	31,710	308
Phase 2-Grading	65	0.5	98,150	955
Phase 2-Foundation(Core&Shell)	89	0.1	26,878	261
Phase 2-Building Construction	129	0	0	0
Phase 2-Architectural Coating	88	0	0	0
Phase 2-Paving	22	0	0	0
Total:			248,244	2,415

Water application rate= 3020 gal/acre/day
 kWhr equivalent= 0.01 kWhr

Notes: 1) Gallons per year of water usage for dust control is calculated based on a minimum control efficiency of 66% (three times daily) with an application rate of 3,020 gal/acre/day (Air & Waste Management Association Air Pollution Engineering Manual (1992 Edition)) and average of 26 construction days per month.

2) CalEEMod Default: Each gallon of delivered potable water in Southern California is associated with 0.009727 kWhr of electricity).

EMFAC2014 Emissions Inventory

Region Type: Air Basin

Region: South Coast

Calendar Year: 2020

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	VMT (miles/day)	Trips (trips/day)	Fuel_Gas (1000 gallons/day)	Fuel_DSL (1000 gallons/day)			
South Coast	2020	Annual	HHDT	DSL	Aggregated	Aggregated	94,401	11,283,644	946,657	0.00	1,766.78			
South Coast	2020	Annual	HHDT	GAS	Aggregated	Aggregated	87	7,545	1,742	1.92	0.00			
South Coast	2020	Annual	LDA	DSL	Aggregated	Aggregated	49,859	2,047,192	236,026	0.00	44.27			
South Coast	2020	Annual	LDA	GAS	Aggregated	Aggregated	6,178,149	245,245,790	29,171,004	8,365.83	0.00			
South Coast	2020	Annual	LDT1	DSL	Aggregated	Aggregated	436	10,308	1,530	0.00	0.47			
South Coast	2020	Annual	LDT1	GAS	Aggregated	Aggregated	673,575	25,456,837	3,092,733	1,009.70	0.00			
South Coast	2020	Annual	LDT2	DSL	Aggregated	Aggregated	11,075	498,882	54,951	0.00	14.82			
South Coast	2020	Annual	LDT2	GAS	Aggregated	Aggregated	2,108,550	81,418,835	9,872,323	3,534.79	0.00			
South Coast	2020	Annual	LHDT1	DSL	Aggregated	Aggregated	103,329	4,276,353	1,299,754	0.00	203.96			
South Coast	2020	Annual	LHDT1	GAS	Aggregated	Aggregated	173,615	6,333,811	2,586,599	612.63	0.00			
South Coast	2020	Annual	LHDT2	DSL	Aggregated	Aggregated	40,573	1,644,690	510,356	0.00	86.79			
South Coast	2020	Annual	LHDT2	GAS	Aggregated	Aggregated	28,772	1,018,932	428,657	113.15	0.00			
South Coast	2020	Annual	MCY	GAS	Aggregated	Aggregated	269,351	1,916,380	538,702	52.62	0.00			
South Coast	2020	Annual	MDV	DSL	Aggregated	Aggregated	26,705	1,126,984	131,705	0.00	43.61			
South Coast	2020	Annual	MDV	GAS	Aggregated	Aggregated	1,509,433	54,618,604	6,970,808	2,902.92	0.00			
South Coast	2020	Annual	MH	DSL	Aggregated	Aggregated	11,454	113,101	1,145	0.00	10.93			
South Coast	2020	Annual	MH	GAS	Aggregated	Aggregated	35,046	331,213	3,506	66.06	0.00			
South Coast	2020	Annual	MHDT	DSL	Aggregated	Aggregated	116,762	7,338,725	1,166,319	0.00	723.81			
South Coast	2020	Annual	MHDT	GAS	Aggregated	Aggregated	24,612	1,335,069	492,446	269.65	0.00			
South Coast	2020	Annual	OBUS	DSL	Aggregated	Aggregated	4,066	300,794	39,836	0.00	37.45			
South Coast	2020	Annual	OBUS	GAS	Aggregated	Aggregated	5,847	252,354	116,983	51.35	0.00			
South Coast	2020	Annual	SBUS	DSL	Aggregated	Aggregated	6,271	198,203	72,370	0.00	26.62			
South Coast	2020	Annual	SBUS	GAS	Aggregated	Aggregated	2,268	93,421	9,073	10.44	0.00			
South Coast	2020	Annual	UBUS	DSL	Aggregated	Aggregated	18	1,877	73	0.00	0.30			
South Coast	2020	Annual	UBUS	GAS	Aggregated	Aggregated	938	88,203	3,753	18.36	0.00			
											MPG	Gallons Per Mile		
							Totals	446,957,746.58			17,009.43	2,959.81	22.4	0.04
							Total (GAS)	418,116,993.09	0.94				24.6	0.04
							Total (DSL)	28,840,753.49	0.06				9.7	0.10

Baseline Year

Calendar Year: 2018

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	VMT (miles/day)	Trips (trips/day)	Fuel_Gas (1000 gallons/day)	Fuel_DSL (1000 gallons/day)			
South Coast	2018	Annual	HHDT	DSL	Aggregated	Aggregated	89,461	10,725,243	885,703	0.00	1,740.58			
South Coast	2018	Annual	HHDT	GAS	Aggregated	Aggregated	115	7,848	2,309	2.10	0.00			
South Coast	2018	Annual	LDA	DSL	Aggregated	Aggregated	41,656	1,728,613	195,377	0.00	39.55			
South Coast	2018	Annual	LDA	GAS	Aggregated	Aggregated	5,988,375	244,387,128	28,234,116	8,757.56	0.00			
South Coast	2018	Annual	LDT1	DSL	Aggregated	Aggregated	522	12,626	1,839	0.00	0.58			
South Coast	2018	Annual	LDT1	GAS	Aggregated	Aggregated	631,267	24,197,112	2,876,472	1,009.51	0.00			
South Coast	2018	Annual	LDT2	DSL	Aggregated	Aggregated	8,233	388,760	40,901	0.00	12.26			
South Coast	2018	Annual	LDT2	GAS	Aggregated	Aggregated	2,039,985	80,591,142	9,524,984	3,740.63	0.00			
South Coast	2018	Annual	LHDT1	DSL	Aggregated	Aggregated	90,674	3,799,845	1,140,560	0.00	186.78			
South Coast	2018	Annual	LHDT1	GAS	Aggregated	Aggregated	176,965	6,630,870	2,636,522	652.44	0.00			
South Coast	2018	Annual	LHDT2	DSL	Aggregated	Aggregated	35,239	1,455,718	443,268	0.00	79.15			
South Coast	2018	Annual	LHDT2	GAS	Aggregated	Aggregated	28,513	1,032,897	424,802	116.72	0.00			
South Coast	2018	Annual	MCY	GAS	Aggregated	Aggregated	249,103	1,820,898	498,205	49.97	0.00			
South Coast	2018	Annual	MDV	DSL	Aggregated	Aggregated	20,653	912,808	102,217	0.00	37.38			
South Coast	2018	Annual	MDV	GAS	Aggregated	Aggregated	1,483,907	55,221,860	6,849,622	3,102.77	0.00			
South Coast	2018	Annual	MH	DSL	Aggregated	Aggregated	10,685	108,747	1,068	0.00	10.63			
South Coast	2018	Annual	MH	GAS	Aggregated	Aggregated	36,134	340,431	3,615	68.93	0.00			
South Coast	2018	Annual	MHDT	DSL	Aggregated	Aggregated	111,118	6,872,077	1,104,660	0.00	702.82			
South Coast	2018	Annual	MHDT	GAS	Aggregated	Aggregated	24,642	1,367,810	493,029	280.24	0.00			
South Coast	2018	Annual	OBUS	DSL	Aggregated	Aggregated	3,917	283,265	38,432	0.00	36.50			
South Coast	2018	Annual	OBUS	GAS	Aggregated	Aggregated	5,900	269,275	118,054	55.62	0.00			
South Coast	2018	Annual	SBUS	DSL	Aggregated	Aggregated	6,194	196,134	71,482	0.00	26.72			
South Coast	2018	Annual	SBUS	GAS	Aggregated	Aggregated	1,986	84,525	7,944	9.53	0.00			
South Coast	2018	Annual	UBUS	DSL	Aggregated	Aggregated	36	3,542	142	0.00	0.61			
South Coast	2018	Annual	UBUS	GAS	Aggregated	Aggregated	926	87,201	3,703	18.65	0.00			
											MPG	Gallons Per Mile		
							Totals	442,526,373.48			17,864.68	2,873.57	21.3	0.05
							Total (GAS)	416,038,996.39	0.94				23.3	0.04
							Total (DSL)	26,487,377.09	0.06				9.2	0.11

**Curtis School - Buildout Operations
Los Angeles-South Coast County, Annual**

Land Use Details

<i>Land Uses</i>	<i>Size</i>	<i>Metric</i>	<i>Lot Acreage</i>	<i>Floor Surface Area</i>	<i>Population</i>
Elementary School	59.93	1000sqft	1.38	59930	0
Parking Lot	54	Space	0.49	21600	0

Trip Summary Information

<i>Land Uses</i>	<i>Average Daily Trip Rate</i>			<i>Mitigated</i>
	<i>Weekday</i>	<i>Saturday</i>	<i>Sunday</i>	
Elementary School	196.0	0.0	0.0	482,423
Parking Lot	0.0	0.0	0.0	
Total	196	0	0	482,423

Mitigated Gasoline and Diesel Usage

	<i>Gasoline</i>	<i>Diesel</i>
<i>Miles/Gallon</i>	24.6	9.7
<i>% Fleet Mix</i>	93.5%	6.5%
Total (Gallons):	18,359	3,195

Note: Fleet mix is 92.3% gasoline @ 30.6 miles/gallon and 7.7% diesel @ 12.1 miles/gallon.

Energy by Land Use - Natural Gas (Mitigated)

<i>Land Uses</i>	<i>kBTU/yr</i>	<i>cu ft/year</i>
ElementarySchool	623,272	593,592
Parking Lot	0	0
Total	623,272	593,592

Energy by Land Use - Electricity (Mitigated)

<i>Land Uses</i>	<i>kWH/yr</i>
ElementarySchool	354,786
Parking Lot	7,560
Total	362,346

Water Detail (Unmitigated)

<i>Land Uses</i>	<i>Indoor Use (Mgal)</i>	<i>Outdoor Use (Mgal)</i>	<i>Electricity Use (kWh/yr)</i>
ElementarySchool	1.738	4.469	62,775
Parking Lot	0.000	0.000	0
Total	1.74	4.47	62,775

Notes: Indoor water results in 0.0111 kWhr of electricity usage per gallon from delivery, treatment, and distribution of water within Southern California (CalEEMod). Outdoor water results in 0.009727 kWhr of electricity usage per gallon from delivery and distribution of water within Southern California (CalEEMod). The City of Los Angeles Green Building Code (Chapter IX, Article 9, of the LAMC) requires newly constructed non-residential and high-rise residential buildings to reduce indoor water use by at least 20 percent by: (1) using water saving fixtures or flow restrictions; and/or (2) demonstrating a 20 percent reduction in baseline water

Peak Electricity Demand Calculations

Electrical Load Factor Equation

$$f_{Load} = \frac{\text{Average load}}{\text{Maximum load in given time period}}$$

Load Factor (%)¹ **52%**

Project Electricity Demand (Operational)

	Baseline (Existing)	Project	Net Increase
Annual Demand			
Building (MWh)	0	362	362
Water (MWh)	0	63	63
Total (MWh)	0	584	584

Average Daily Demand

Building (kWh)	0	993	993
Water (kWh)	0	172	172
Total (kWh)	0	1,601	1,601

Average Load

Building (kW)	0	41	41
Water (kW)	0	7	7
Total (kW)	0	67	67

Peak Load Calculation

Peak Load (kW)	0	87	87
Systemwide Peak Load (MW)		5,854	
Percent of Peak		0.001%	

¹2017 Report: System Efficiency of California's Electric Grid. California Public Utilities Co 2017. Page 11, Figure 6. Visual estimate.

EMFAC Emission inventories for County

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: County

Region: Los Angeles

Calendar Year: **2018** (Construction Start Year)

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Fuel_Gasoline (1000 gallons/day)	Fuel_DSL (1000 gallons/day)
Los Angeles	2018	HHDT	Aggregatec	Aggregatec	DSL	0.00	1740.58
Los Angeles	2018	HHDT	Aggregatec	Aggregatec	GAS	2.10	0.00
Los Angeles	2018	LDA	Aggregatec	Aggregatec	DSL	0.00	39.55
Los Angeles	2018	LDA	Aggregatec	Aggregatec	GAS	8757.56	0.00
Los Angeles	2018	LDT1	Aggregatec	Aggregatec	DSL	0.00	0.58
Los Angeles	2018	LDT1	Aggregatec	Aggregatec	GAS	1009.51	0.00
Los Angeles	2018	LDT2	Aggregatec	Aggregatec	DSL	0.00	12.26
Los Angeles	2018	LDT2	Aggregatec	Aggregatec	GAS	3740.63	0.00
Los Angeles	2018	LHDT1	Aggregatec	Aggregatec	DSL	0.00	186.78
Los Angeles	2018	LHDT1	Aggregatec	Aggregatec	GAS	652.44	0.00
Los Angeles	2018	LHDT2	Aggregatec	Aggregatec	DSL	0.00	79.15
Los Angeles	2018	LHDT2	Aggregatec	Aggregatec	GAS	116.72	0.00
Los Angeles	2018	MCY	Aggregatec	Aggregatec	GAS	49.97	0.00
Los Angeles	2018	MDV	Aggregatec	Aggregatec	DSL	0.00	37.38
Los Angeles	2018	MDV	Aggregatec	Aggregatec	GAS	3102.77	0.00
Los Angeles	2018	MH	Aggregatec	Aggregatec	DSL	0.00	10.63
Los Angeles	2018	MH	Aggregatec	Aggregatec	GAS	68.93	0.00
Los Angeles	2018	MHDT	Aggregatec	Aggregatec	DSL	0.00	702.82
Los Angeles	2018	MHDT	Aggregatec	Aggregatec	GAS	280.24	0.00
Los Angeles	2018	OBUS	Aggregatec	Aggregatec	DSL	0.00	36.50
Los Angeles	2018	OBUS	Aggregatec	Aggregatec	GAS	55.62	0.00
Los Angeles	2018	SBUS	Aggregatec	Aggregatec	DSL	0.00	26.72
Los Angeles	2018	SBUS	Aggregatec	Aggregatec	GAS	9.53	0.00
Los Angeles	2018	UBUS	Aggregatec	Aggregatec	DSL	0.00	0.61
Los Angeles	2018	UBUS	Aggregatec	Aggregatec	GAS	18.65	0.00
						6,520,607,410	1,048,854,724
Fuel Usage for Project Construction						8,469	138,972
Percentage of County for Construction						0.0001%	0.013%

EMFAC Emission inventories for County

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: County

Region: Los Angeles

Calendar Year: **2020** (Operational Start Year)

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Fuel_Gasoline (1000 gallons/day)	Fuel_DSL (1000 gallons/day)
Los Angeles	2020	HHDT	Aggregatec	Aggregatec	DSL	0.00	1766.78
Los Angeles	2020	HHDT	Aggregatec	Aggregatec	GAS	1.92	0.00
Los Angeles	2020	LDA	Aggregatec	Aggregatec	DSL	0.00	44.27
Los Angeles	2020	LDA	Aggregatec	Aggregatec	GAS	8365.83	0.00
Los Angeles	2020	LDT1	Aggregatec	Aggregatec	DSL	0.00	0.47
Los Angeles	2020	LDT1	Aggregatec	Aggregatec	GAS	1009.70	0.00
Los Angeles	2020	LDT2	Aggregatec	Aggregatec	DSL	0.00	14.82
Los Angeles	2020	LDT2	Aggregatec	Aggregatec	GAS	3534.79	0.00
Los Angeles	2020	LHDT1	Aggregatec	Aggregatec	DSL	0.00	203.96
Los Angeles	2020	LHDT1	Aggregatec	Aggregatec	GAS	612.63	0.00
Los Angeles	2020	LHDT2	Aggregatec	Aggregatec	DSL	0.00	86.79
Los Angeles	2020	LHDT2	Aggregatec	Aggregatec	GAS	113.15	0.00
Los Angeles	2020	MCY	Aggregatec	Aggregatec	GAS	52.62	0.00
Los Angeles	2020	MDV	Aggregatec	Aggregatec	DSL	0.00	43.61
Los Angeles	2020	MDV	Aggregatec	Aggregatec	GAS	2902.92	0.00
Los Angeles	2020	MH	Aggregatec	Aggregatec	DSL	0.00	10.93
Los Angeles	2020	MH	Aggregatec	Aggregatec	GAS	66.06	0.00
Los Angeles	2020	MHDT	Aggregatec	Aggregatec	DSL	0.00	723.81
Los Angeles	2020	MHDT	Aggregatec	Aggregatec	GAS	269.65	0.00
Los Angeles	2020	OBUS	Aggregatec	Aggregatec	DSL	0.00	37.45
Los Angeles	2020	OBUS	Aggregatec	Aggregatec	GAS	51.35	0.00
Los Angeles	2020	SBUS	Aggregatec	Aggregatec	DSL	0.00	26.62
Los Angeles	2020	SBUS	Aggregatec	Aggregatec	GAS	10.44	0.00
Los Angeles	2020	UBUS	Aggregatec	Aggregatec	DSL	0.00	0.30
Los Angeles	2020	UBUS	Aggregatec	Aggregatec	GAS	18.36	0.00
						6,208,441,489	1,080,329,687
Net Fuel Usage for Project Operation						18,360	3,195
Percentage of County for Operation						0.0003%	0.0003%