

# Appendix N

## **Energy Calcs**



# **N-1 Energy Calculations- Construction**









<b>Total</b>		<b>6</b>				12426	<b>260.03</b>	10.35	<b>25,123.67</b>	<b>138.96</b>	32,046.00	9.13	<b>15,220.15</b>	146.10	12,426.00	10.35	<b>14,115.94</b>	0.00	0.00	10.35	<b>0.00</b>	
Site Preparation - Site 4	Graders Rubber Tired	1	8	10	80																	
Site Preparation - Site 4	Dozers	0	0	10	0																	
Site Preparation - Site 4	Scrapers	1	8	10	80																	
Site Preparation - Site 4	Tractors/Loaders/ Backhoes	1	7	10	70																	
<b>Total</b>		<b>3</b>				230	<b>10.85</b>	10.35	<b>1,048.31</b>	<b>0.34</b>	80.00	9.13	<b>37.24</b>	0.00	0.00	10.35	<b>0.00</b>	23.30	651.00	10.35	<b>2,251.21</b>	
Grading - Site 4	Excavators	0	0	19	0																	
Grading - Site 4	Graders Rubber Tired	1	8	19	152																	
Grading - Site 4	Dozers	1	8	19	152																	
Grading - Site 4	Tractors/Loaders/ Backhoes	2	7	19	266																	
Grading - Site 4	Trenchers	1	8	19	152																	
<b>Total</b>		<b>5</b>				722	<b>20.18</b>	10.35	<b>1,949.76</b>	<b>1.06</b>	247.00	9.13	<b>116.10</b>	0.00	0.00	10.35	<b>0.00</b>	46.64	1,303.00	10.35	<b>4,506.28</b>	
Building Construction - Site 4	Cranes	1	8	691	5528																	
Building Construction - Site 4	Cranes	1	6	691	4146																	
Building Construction - Site 4	Forklifts	2	7	691	9674																	
Building Construction - Site 4	Generator Sets	1	8	691	5528																	
Building Construction - Site 4	Tractors/Loaders/ Backhoes	1	6	691	4146																	
Building Construction - Site 4	Welders	3	8	691	16584																	
<b>Total</b>		<b>9</b>				45606	<b>921.23</b>	10.35	<b>89,007.73</b>	<b>163.34</b>	39,387.00	9.13	<b>17,890.47</b>	234.09	20,039.00	10.35	<b>22,617.39</b>	0.00	0.00	10.35	<b>0.00</b>	
Paving - Site 5	Cement and Mortar Mixers	4	6	16	384																	
Paving - Site 5	Pavers	1	7	16	112																	
Paving - Site 5	Paving Equipment	0	0	16	0																	
Paving - Site 5	Rollers	1	7	16	112																	
Paving - Site 5	Tractors/Loaders/ Backhoes	1	7	16	112																	
<b>Total</b>		<b>7</b>				720	<b>7.58</b>	10.35	<b>732.37</b>	<b>1.23</b>	288.00	9.13	<b>134.72</b>	0.00	0.00	10.35	<b>0.00</b>	0.00	0.00	10.35	<b>0.00</b>	
Architectural Coating - Site 5	Air Compressors	1	6	16	96																	
<b>Total</b>		<b>1</b>				96	<b>2.05</b>	10.35	<b>198.07</b>	<b>1.37</b>	320.00	9.13	<b>150.05</b>	0.00	0.00	10.35	<b>0.00</b>	0.00	0.00	10.35	<b>0.00</b>	
Paving - Site 4	Cement and Mortar Mixers	1	8	31	248																	
Paving - Site 4	Pavers	1	8	31	248																	
Paving - Site 4	Paving Equipment	1	8	31	248																	
Paving - Site 4	Rollers	2	8	31	496																	
Paving - Site 4	Tractors/Loaders/ Backhoes	1	8	31	248																	
<b>Total</b>		<b>6</b>				1488	<b>24.24</b>	10.35	<b>2,342.03</b>	<b>1.86</b>	465.00	9.13	<b>203.72</b>	0.00	0.00	10.35	<b>0.00</b>	0.00	0.00	10.35	<b>0.00</b>	





Grading - Site 3	Rubber Tired Dozers	1	1	4	4																
Grading - Site 3	Tractors/Loaders/ Backhoes	2	6	4	48																
Grading - Site 3	Trenchers	1	8	4	32																
<b>Total</b>		<b>5</b>	<b>8</b>	<b>4</b>	<b>32</b>	<b>116</b>	<b>2.69</b>	<b>10.35</b>	<b>259.90</b>	<b>0.20</b>	<b>52.00</b>	<b>9.13</b>	<b>21.91</b>	<b>0.00</b>	<b>0.00</b>	<b>10.35</b>	<b>0.00</b>	<b>11.84</b>	<b>337.00</b>	<b>10.35</b>	<b>1,143.96</b>
Building Construction - Site 3	Cranes	1	4	230	920																
Building Construction - Site 3	Forklifts	2	6	230	2760																
Building Construction - Site 3	Generator Sets	0	0	230	0																
Building Construction - Site 3	Tractors/Loaders/ Backhoes	2	8	230	3680																
Building Construction - Site 3	Welders	0	0	230	0																
<b>Total</b>		<b>5</b>	<b>0</b>	<b>230</b>	<b>0</b>	<b>7360</b>	<b>116.27</b>	<b>10.35</b>	<b>11,233.82</b>	<b>20.87</b>	<b>5,520.00</b>	<b>9.13</b>	<b>2,285.87</b>	<b>31.83</b>	<b>2,760.00</b>	<b>10.35</b>	<b>3,075.36</b>	<b>0.00</b>	<b>0.00</b>	<b>10.35</b>	<b>0.00</b>
Paving - Site 6	Cement and Mortar Mixers	4	6	12	288																
Paving - Site 6	Pavers	1	7	12	84																
Paving - Site 6	Paving Equipment	0	0	12	0																
Paving - Site 6	Rollers	1	7	12	84																
Paving - Site 6	Tractors/Loaders/ Backhoes	1	7	12	84																
<b>Total</b>		<b>7</b>	<b>7</b>	<b>12</b>	<b>84</b>	<b>540</b>	<b>5.68</b>	<b>10.35</b>	<b>548.79</b>	<b>0.82</b>	<b>216.00</b>	<b>9.13</b>	<b>89.81</b>	<b>0.00</b>	<b>0.00</b>	<b>10.35</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>10.35</b>	<b>0.00</b>
Architectural Coating - Site 6	Air Compressors	1	6	12	72																
<b>Total</b>		<b>1</b>	<b>6</b>	<b>12</b>	<b>72</b>	<b>72</b>	<b>1.53</b>	<b>10.35</b>	<b>147.83</b>	<b>0.45</b>	<b>120.00</b>	<b>9.13</b>	<b>49.29</b>	<b>0.00</b>	<b>0.00</b>	<b>10.35</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>10.35</b>	<b>0.00</b>
Paving - Site 3	Cement and Mortar Mixers	4	6	12	288																
Paving - Site 3	Pavers	1	7	12	84																
Paving - Site 3	Paving Equipment	0	0	12	0																
Paving - Site 3	Rollers	1	7	12	84																
Paving - Site 3	Tractors/Loaders/ Backhoes	1	7	12	84																
<b>Total</b>		<b>7</b>	<b>7</b>	<b>12</b>	<b>84</b>	<b>540</b>	<b>5.68</b>	<b>10.35</b>	<b>548.79</b>	<b>0.82</b>	<b>216.00</b>	<b>9.13</b>	<b>89.81</b>	<b>0.00</b>	<b>0.00</b>	<b>10.35</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>10.35</b>	<b>0.00</b>
Architectural Coating - Site 3	Air Compressors	1	6	12	72																
<b>Total</b>		<b>1</b>	<b>6</b>	<b>12</b>	<b>72</b>	<b>72</b>	<b>1.53</b>	<b>10.35</b>	<b>147.83</b>	<b>0.23</b>	<b>60.00</b>	<b>9.13</b>	<b>25.19</b>	<b>0.00</b>	<b>0.00</b>	<b>10.35</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>10.35</b>	<b>0.00</b>
<b>Total</b>						<b>142,365.00</b>	<b>2,983.19</b>		<b>288,230.92</b>				<b>90,926.62</b>				<b>86,013.53</b>				<b>57,740.10</b>

## **N-2 Energy Calculations- Operations**



Kaiser LAMC Campus - Sunset Master Plan

Building		BGSF	Annual Electricity, KWH/yr	Annual Gas, Therms/yr	Emergency Standby Diesel Generator, KW	Chiller, Tons	Gas-Fired Boiler, MBH
1345 N. Vermont MOB	9-story	130000	1413100	16770	750	500	4,420
4760B Sunset MOB	4-story	50000	543500	6450	300	200	1,700
1517 Vermont Parking Structure	8-story	230600	299780				
1526 Edgemont Hospital Expansion- Option A	5-story	177300	2482200	27481.5	1,500	900	8,865
1526 Edgemont MOB- Option B	5-story	177300	1927251	22871.7	1,000	700	6,028
1505 Edgemont MOB - Option A	5-Story	73500	798945	9481.5	400	300	2,499
1505 Edgemont MOB - Option B	3-Story	41500	451105	5353.5	300	170	1,411
4950 Sunset Parking Structure Expansion	9-story	122400	159120				

Noise/vibration mitigation

Emergency Standby Diesel Generators	Sound-proof enclosure, comply with USEPA and AQMD emissions standards.
Chillers	Sound-proof mechanical room, spring vibration isolation mounts.
Boilers	Sound-proof mechanical room, spring vibration isolation mounts.
Air handling Equipment	Sound traps in supply and return ducts, vibration isolation mounts
Cooling Towers	Low noise fans, spring vibration isolation mounts.

# Operation

## Electricity Consumption

### Existing

Land Use	Size (sf)	Total (kWh/year)
Medical Office Building (Site 1)	219,110	4,051,381
Medical Office Building (Site 2)	15,110	279,439
Apartments (Low Rise)	2,000	8,236
Unenclosed Parking Structure	114,736	200,795
Parking Lot 1	34,400	12,040
Parking Lot 2	13,068	4,574
<b>Total</b>	<b>398,424</b>	<b>4,556,465</b>

### Proposed

Land Use	Size (sf)	Total (kWh/year)
Site 1 (1345 N. Vermont Avenue) – Medical Office Building	130,000	1,413,100
Site 1 (1345 N. Vermont Avenue) – Enclosed Parking Structure	302,800	393,640
Site 2 (4760B Sunset MOB) - Procedure Addition to Medical Office Building	50,000	543,500
Site 3 (1505 Edgemont MOB – Option B)	73,500	798,945
Site 4 (1526 Edgemont MOB – Option B)	177,300	2,482,200
Site 5 (1517 Vermont Parking Structure)	230,600	299,780
Site 5 (1517 Vermont Retail/Commercial Space)	2,300	0
Site 6 (4950 Sunset Parking Structure Expansion)	122,400	159,120
<b>Total</b>	<b>1,088,900</b>	<b>6,090,285</b>

## Natural Gas Consumption

### Existing

Land Use	kBTU/yr	Therms	cubic feet
Medical Office Building (Site 1)	11,089,258.00	110,892.58	10,808,243.66
Medical Office Building (Site 2)	764,869.00	7,648.69	745,486.35
Apartments (Low Rise)	28,232.00	282.32	27,516.57
<b>Total</b>	<b>11,882,359.00</b>	<b>118,823.59</b>	

## Proposed

Land Use	kBTU/yr	Therms	cubic feet
Site 1 (1345 N. Vermont MOB)	1,677,000.00	16,770.00	1,634,502.92
Site 2 (4760B Sunset MOB)	645,000.00	6,450.00	628,654.97
Site 3 (1505 Edgemont MOB – Option B)	948,150.00	9,481.50	924,122.81
Site 4 (1526 Edgemont MOB – Option B)	2,748,150.00	27,481.50	2,678,508.77
Site 5 (1517 Vermont Parking Structure)	0.00		0.00
Site 6 (4950 Sunset Parking Structure Expansion)	0.00		0.00
<b>Total</b>	<b>6,018,300.00</b>	<b>60,183.00</b>	<b>5,865,789.47</b>

## Proposed Operational Petroleum Use

<i>Gasoline</i>			
Land Use	Vehicle MT CO2	kg CO2/Gallon	Gallons
Enclosed Parking with Elevator	1,315.33	9.13	144,067.20
Hospital	4,567.29	9.13	500,250.74
Medical Office Building	0.00	9.13	-
Parking Lot	0.00	9.13	-
Strip Mall	56.77	9.13	6,217.42
<b>Total</b>	<b>5,939.39</b>		<b>650,535.37</b>

<i>Diesel</i>			
Land Use	Vehicle MT CO2	kg CO2/Gallon	Gallons
Enclosed Parking with Elevator	94.87	10.35	9,166.11
Hospital	329.42	10.35	31,827.89
Medical Office Building	0.00	10.35	-
Parking Lot	0.00	10.35	-
Strip Mall	4.09	10.35	395.58
<b>Total</b>	<b>428.38</b>		<b>41,389.57</b>

## Existing Operational Petroleum Use

*Gasoline*

<b>Land Use</b>	<b>Vehicle MT CO2</b>	<b>kg CO2/Gallon</b>	<b>Gallons</b>
Apartments Low Rise	22.59	9.13	2,473.98
Medical Office Building	7,869.23	9.13	861,908.66
<b>Total</b>	<b>7,891.81</b>		<b>864,382.63</b>

*Diesel*

<b>Land Use</b>	<b>Vehicle MT CO2</b>	<b>kg CO2/Gallon</b>	<b>Gallons</b>
Apartments Low Rise	1.39	10.35	134.33
Medical Office Building	484.39	10.35	46,800.60
<b>Total</b>	<b>485.78</b>		<b>46,934.93</b>



EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: LOS ANGELES

Calendar Year: 2017

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	hicle Categ	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption	%
LOS ANGELES	2017	HHDT	Aggregated	Aggregated	GAS	89.15595984	6059.153949	1783.832	1.669642136	0.001
LOS ANGELES	2017	HHDT	Aggregated	Aggregated	DSL	51991.1455	6235603.066	507765.8	1049.661011	0.988
LOS ANGELES	2017	HHDT	Aggregated	Aggregated	NG	1745.8719	70562.60086	6808.9	33.57841833	0.011
LOS ANGELES	2017	LDA	Aggregated	Aggregated	GAS	3841747.993	157524324.1	18076781	5873.652194	0.986
LOS ANGELES	2017	LDA	Aggregated	Aggregated	DSL	23417.44739	939972.9948	107863.7	22.95532725	0.006
LOS ANGELES	2017	LDA	Aggregated	Aggregated	ELEC	35842.36734	1353738.279	181826.1	0	0.008
LOS ANGELES	2017	LDT1	Aggregated	Aggregated	GAS	394886.4336	15312742.74	1790618	665.7104495	0.997
LOS ANGELES	2017	LDT1	Aggregated	Aggregated	DSL	414.845132	10893.08906	1497.533	0.519729887	0.001
LOS ANGELES	2017	LDT1	Aggregated	Aggregated	ELEC	927.559055	28788.34269	4404.007	0	0.002
LOS ANGELES	2017	LDT2	Aggregated	Aggregated	GAS	1280463.763	51116101.03	5959988	2495.975753	0.994
LOS ANGELES	2017	LDT2	Aggregated	Aggregated	DSL	4374.963847	209587.2814	21712.91	6.982258635	0.004
LOS ANGELES	2017	LDT2	Aggregated	Aggregated	ELEC	3176.025492	118256.8336	16312.47	0	0.002
LOS ANGELES	2017	LHDT1	Aggregated	Aggregated	GAS	111251.5127	4240759.781	1657482	425.737547	0.699
LOS ANGELES	2017	LHDT1	Aggregated	Aggregated	DSL	42490.14133	1824073.708	534472.5	91.57200108	0.301
LOS ANGELES	2017	LHDT2	Aggregated	Aggregated	GAS	17335.60988	628076.0832	258274.8	72.48606392	0.468
LOS ANGELES	2017	LHDT2	Aggregated	Aggregated	DSL	17065.51664	714023.3773	214662.7	39.78119474	0.532
LOS ANGELES	2017	MCY	Aggregated	Aggregated	GAS	143881.6381	1078083.976	287763.3	30.14289227	1.000
LOS ANGELES	2017	MDV	Aggregated	Aggregated	GAS	886639.291	32936782.12	4084464	1936.568224	0.987
LOS ANGELES	2017	MDV	Aggregated	Aggregated	DSL	9930.642195	439617.1931	49164.2	19.01916229	0.013
LOS ANGELES	2017	MDV	Aggregated	Aggregated	ELEC	309.4346808	10357.7843	1525.465	0	0.000
LOS ANGELES	2017	MH	Aggregated	Aggregated	GAS	20270.54687	196334.073	2027.866	40.49959601	0.801
LOS ANGELES	2017	MH	Aggregated	Aggregated	DSL	4615.978854	48805.85602	461.5979	4.884374355	0.199
LOS ANGELES	2017	MHDT	Aggregated	Aggregated	GAS	14666.99491	811298.8868	293457.2	170.3003022	0.184
LOS ANGELES	2017	MHDT	Aggregated	Aggregated	DSL	60099.68547	3598737.816	585234.4	383.2208229	0.816
LOS ANGELES	2017	OBUS	Aggregated	Aggregated	GAS	4132.266048	197122.4206	82678.38	41.33266682	0.489
LOS ANGELES	2017	OBUS	Aggregated	Aggregated	DSL	2855.102442	205926.4854	28126.74	27.29299645	0.511
LOS ANGELES	2017	SBUS	Aggregated	Aggregated	GAS	885.47436	39221.53391	3541.897	4.441646582	0.246
LOS ANGELES	2017	SBUS	Aggregated	Aggregated	DSL	3783.765882	120085.0635	43664.13	16.40720814	0.754
LOS ANGELES	2017	UBUS	Aggregated	Aggregated	GAS	445.3119347	32619.68898	1781.248	8.090185429	0.070
LOS ANGELES	2017	UBUS	Aggregated	Aggregated	DSL	107.4999	12564.80972	429.9996	2.181522197	0.027
LOS ANGELES	2017	UBUS	Aggregated	Aggregated	ELEC	14	1217.553685	56	0	0.003
LOS ANGELES	2017	UBUS	Aggregated	Aggregated	NG	3985.714235	422319.6248	15942.86	105.7063635	0.901

<b>Diesel</b>	607,534,327.43	gallons/yr
<b>Gasoline</b>	4,294,811,614.51	gallons/yr

