

# Appendix E

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Energy Demand Calculations

# 1000 North La Brea Avenue Project

Last Updated: 7/2/2024

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors [1]:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529
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*Values above are expressed in gallons per horsepower-hour/BSFC.*

## CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per		Load Factor	Construction Phase	Fuel Used (gallons)
		Day	Horsepower			
Concrete/Industrial Saws	1	8	33	0.73	Demolition Phase	204
Crushing/Proc. Equipment	1	8	12	0.78	Demolition Phase	79
Excavators	2	8	36	0.38	Demolition Phase	232
Tractors/Loaders/Backhoes	1	8	84	0.37	Demolition Phase	263
Excavators	1	8	36	0.38	Site Preparation Phase	51
Skid Steer Loaders	1	8	71	0.37	Grading Phase	679
Bore/Drill Rigs	2	8	83	0.5	Grading Phase	2,146
Excavators	2	8	36	0.38	Grading Phase	707
Tractors/Loaders/Backhoes	1	8	84	0.37	Grading Phase	804
Cranes	1	4	367	0.29	Building Construction Phase	14,627
Forklifts	2	6	82	0.2	Building Construction Phase	7,517
Generator Sets	1	8	14	0.74	Building Construction Phase	3,166
Pumps	2	8	11	0.74	Building Construction Phase	4,975
Tractors/Loaders/Backhoes	1	8	84	0.37	Building Construction Phase	9,497
Welders	3	8	46	0.45	Building Construction Phase	18,976
Air Compressors	2	8	37	0.48	Architectural Coating Phase	3,974
Tractors/Loaders/Backhoes	1	8	84	0.37	Paving Phase	877
Cement and Mortar Mixers	1	8	10	0.56	Paving Phase	158
Rollers	1	8	36	0.38	Paving Phase	386
Paving Equipment	1	8	89	0.36	Paving Phase	904
<b>Total Fuel Used</b>						<b>70,222</b>
						(Gallons)

Construction Phase	Days of Operation
Demolition Phase	18
Site Preparation Phase	8
Grading Phase	55
Building Construction Phase	650
Paving Phase	60
Architectural Coating Phase	238
<b>Total Days</b>	<b>1029</b>

## WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition Phase	24.1	13	18.5	172.72
Site Preparation Phase	24.1	3	18.5	15.35
Grading Phase	24.1	15	18.5	633.30
Building Construction Phase	24.1	498	18.5	248483.40
Paving Phase	24.1	10	18.5	460.58
Architectural Coating Phase	24.1	100	18.5	18178.36
<b>Total</b>				<b>267,943.71</b>

### HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
<b>HAULING TRIPS</b>				
Demolition Phase	7.5	27	35.7	127.57
Site Preparation Phase	7.5	0	35.7	0.00
Grading Phase	7.5	60	35.7	285.60
Building Construction Phase	7.5	0	35.7	0.00
Paving Phase	7.5	0	35.7	0.00
Architectural Coating Phase	7.5	0	35.7	0.00
<b>Total</b>				<b>413.17</b>
<b>VENDOR TRIPS</b>				
Demolition Phase	7.5	0	14.7	0.00
Site Preparation Phase	7.5	0	14.7	0.00
Grading Phase	7.5	0	14.7	0.00
Building Construction Phase	7.5	106	10.2	93704.00
Paving Phase	7.5	0	14.7	0.00
Architectural Coating Phase	7.5	0	14.7	0.00
<b>Total</b>				<b>93,704.00</b>
<b>Total Gasoline Consumption (gallons)</b>				<b>267,944</b>
<b>Total Diesel Consumption (gallons)</b>				<b>164,339</b>

**Sources:**

[1] United States Environmental Protection Agency. 2021. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2*. September. Available at: <https://www.epa.gov/system/files/documents/2021-08/420r21021.pdf>.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2021. *National Transportation Statistics*. Available at: <https://www.bts.gov/topics/national-transportation-statistics>.