

**Kaiser Permanente Riverside Medical Center Expansion Project
Energy Calculations**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Fuel Consumption Rate (gallons per hour)	Duration (total hours/day)	# days	Total Fuel Consumption (gallons)
Phase 1-4 Demolition	Concrete/Industrial Saws	1	8	81	0.73	2.3652	8	23	435.20
Phase 1-4 Demolition	Excavators	3	8	158	0.38	2.4016	24	23	1325.68
Phase 1-4 Demolition	Rubber Tired Dozers	2	8	247	0.4	3.952	16	23	1454.34
Phase 1-4 Grading	Excavators	2	8	158	0.38	2.4016	16	21	806.94
Phase 1-4 Grading	Graders	1	8	187	0.41	3.0668	8	21	515.22
Phase 1-4 Grading	Rubber Tired Dozers	1	8	247	0.40	3.952	8	21	663.94
Phase 1-4 Grading	Scrapers	2	8	367	0.48	7.0464	16	21	2367.59
Phase 1-4 Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	1.4356	16	21	482.36
Phase 1-4 Paving	Pavers	2	8	130	0.42	2.184	16	22	768.77
Phase 1-4 Paving	Paving Equipment	2	8	132	0.36	1.9008	16	22	669.08
Phase 1-4 Paving	Rollers	2	8	80	0.38	1.216	16	22	428.03
Phase 1-4 Building Construction	Cranes	1	7	231	0.29	2.6796	7	283	5308.29
Phase 1-4 Building Construction	Forklifts	3	8	89	0.20	0.712	24	283	4835.90
Phase 1-4 Building Construction	Generator Sets	1	8	84	0.74	2.4864	8	283	5629.21
Phase 1-4 Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	1.4356	21	283	8531.77
Phase 1-4 Building Construction	Welders	1	8	46	0.45	0.828	8	283	1874.59
Phase 1-4 Architectural Coating	Air Compressors	1	6	78	0.48	1.4976	6	44	395.37
Phase 5-7 Demolition	Concrete/Industrial Saws	1	8	81	0.73	2.3652	8	22	416.28
Phase 5-7 Demolition	Excavators	3	8	158	0.38	2.4016	24	22	1268.04
Phase 5-7 Demolition	Rubber Tired Dozers	2	8	247	0.4	3.952	16	22	1391.10
Phase 5-7 Grading	Excavators	2	8	158	0.38	2.4016	16	44	1690.73
Phase 5-7 Grading	Graders	1	8	187	0.41	3.0668	8	44	1079.51
Phase 5-7 Grading	Rubber Tired Dozers	1	8	247	0.4	3.952	8	44	1391.10
Phase 5-7 Grading	Scrapers	2	8	367	0.48	7.0464	16	44	4960.67
Phase 5-7 Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	1.4356	16	44	1010.66
Phase 5-7 Paving	Pavers	2	8	130	0.42	2.184	16	43	1502.59
Phase 5-7 Paving	Paving Equipment	2	8	132	0.36	1.9008	16	43	1307.75
Phase 5-7 Paving	Rollers	2	8	80	0.38	1.216	16	43	836.61
Phase 5-7 Building Construction	Cranes	1	7	231	0.29	2.6796	7	673	12623.60
Phase 5-7 Building Construction	Forklifts	3	8	89	0.2	0.712	24	673	11500.22
Phase 5-7 Building Construction	Generator Sets	1	8	84	0.74	2.4864	8	673	13386.78
Phase 5-7 Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	1.4356	21	673	20289.33
Phase 5-7 Building Construction	Welders	1	8	46	0.45	0.828	8	673	4457.95
Phase 5-7 Architectural Coating	Air Compressors	1	6	78	0.48	1.4976	6	88	790.73
								Total:	116,396
Notes:								Off-Site Mobile Construction Total:	188,252
Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor								TOTAL:	304,648
Where:									
Fuel Consumption Factor for a diesel engine is 0.04 gallons per horsepower per hour (gal/hp/hr) and a gasoline engine is 0.06 gal/hp/hr.									
Source: Refer to CalEEMod outputs for assumptions used in this analysis.									