

Appendix O

Energy Calculations



O-1 Construction Energy Calculations

**Burbank De Soto
Construction Energy Analysis**

Annual Fuel Summary

Heavy-Duty Construction Equipment	
441,458	Total Project Consumption
27,591	Annual Consumption
Haul Trucks	
49,836	Total Project Consumption
3,115	Annual Consumption
Vendor Trucks	
211,757	Total Project Consumption
13,235	Annual Consumption
Workers	
391,661	Total Project Consumption
24,479	Annual Consumption
261,593	Project Consumption of diesel for Haul Trucks and Vendors
16,350	Annual Consumption
703,051	Total Gallons Diesel
391,661	Total Gallons Gasoline

16.0 Estimated Project Construction Duration (years)

43,941 Annual Average Gallons Diesel
24,479 Annual Average Gallons Gasoline

County of Los Angeles Annual Fuel Consumption (2016)			Percent of Annual Project Compared to Los Angeles County
Source	Fuel Type	Gallons	
Workers	Gasoline	3,577,000,000	0.0007%
Off-Road/Vendor/Haul Trucks	Diesel	581,000,000	0.0076%

Notes:

¹ Gasoline and diesel amounts from CEC, 2016. Available:
http://www.energy.ca.gov/almanac/transportation_data/gasoline/2016_A15_Results.xlsx

Burbank De Soto
Construction Energy Analysis
Off-Road Equipment

Equipment ≤ 50 hp

pounds fuel/hp-hr (OFFROAD2011 model, ≤ 50 hp): 0.408 lb/hp-hr
diesel pounds/gallon (CARB density assumption): 7.07 lb/gal
diesel gallons/hp-hr: 0.0577 gal/hp-hr
Total <50 565,813 hp-hr
Total diesel gallons: 32,652 gal

Equipment > 50 hp

pounds fuel/hp-hr (OFFROAD2011 model, > 50 hp): 0.367 lb/hp-hr
diesel pounds/gallon (CARB density assumption): 7.07 lb/gal
diesel gallons/hp-hr: 0.0519 gal/hp-hr
Total >50 7,875,359 hp-hr
Total diesel gallons: 408,806 gal

Total diesel gallons (off-road equipment): 441,458 gal

Project Phase	Construction Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Phase 1	Demolition	Concrete/Industrial Saws	1	8	81	0.73	30	14,191
Phase 1	Demolition	Excavators	2	8	158	0.38	30	28,819
Phase 1	Demolition	Rubber Tired Dozers	2	8	247	0.4	30	47,424
Phase 1	Site Preparation	Rubber Tired Dozers	1	8	247	0.4	30	23,712
Phase 1	Site Preparation	Tractors/Loaders/Backhoes	1	8	97	0.37	30	8,614
Phase 1	Grading	Excavators	1	8	158	0.38	45	21,614
Phase 1	Grading	Graders	1	8	187	0.41	45	27,601
Phase 1	Grading	Rubber Tired Dozers	1	8	247	0.4	45	35,568
Phase 1	Grading	Tractors/Loaders/Backhoes	3	8	97	0.37	45	38,761
Phase 1	Building Construction	Cranes	1	7	231	0.29	45	21,102
Phase 1	Building Construction	Forklifts	3	8	89	0.2	370	158,064
Phase 1	Building Construction	Generator Sets	1	8	84	0.74	370	183,994
Phase 1	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	370	278,865
Phase 1	Building Construction	Welders	1	8	46	0.45	370	61,272
Phase 1	Paving	Cement and Mortar Mixers	2	6	9	0.56	370	22,378
Phase 1	Paving	Pavers	1	8	130	0.42	175	76,440
Phase 1	Paving	Paving Equipment	2	6	132	0.36	132	75,272
Phase 1	Paving	Rollers	2	6	80	0.38	132	48,154
Phase 1	Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	132	37,900
Phase 1	Architectural Coating	Air Compressors	1	6	78	0.48	132	29,652
Phase 2	Demolition	Concrete/Industrial Saws	1	8	81	0.73	30	14,191
Phase 2	Demolition	Excavators	3	8	158	0.38	30	43,229
Phase 2	Demolition	Rubber Tired Dozers	2	8	247	0.4	30	47,424
Phase 2	Demolition	Tractors/Loaders/Backhoes	3	8	97	0.37	30	25,841
Phase 2	Site Preparation	Graders	1	8	187	0.41	30	18,401
Phase 2	Site Preparation	Rubber Tired Dozers	3	8	247	0.4	30	71,136
Phase 2	Site Preparation	Scrapers	1	8	367	0.48	30	42,278
Phase 2	Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	30	34,454
Phase 2	Grading	Excavators	1	8	158	0.38	20	9,606
Phase 2	Grading	Graders	1	8	187	0.41	20	12,267
Phase 2	Grading	Rubber Tired Dozers	1	8	247	0.4	20	15,808
Phase 2	Grading	Tractors/Loaders/Backhoes	3	8	97	0.37	20	17,227
Phase 2	Building Construction	Cranes	1	7	231	0.29	238	111,605
Phase 2	Building Construction	Forklifts	3	8	89	0.2	238	101,674
Phase 2	Building Construction	Generator Sets	1	8	84	0.74	238	118,353
Phase 2	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	238	179,378
Phase 2	Building Construction	Welders	1	8	46	0.45	238	39,413
Phase 2	Architectural Coating	Air Compressors	1	6	78	0.48	151	33,921
Phase 2	Paving	Cement and Mortar Mixers	1	8	9	0.56	62	2,500
Phase 2	Paving	Pavers	2	8	130	0.42	62	54,163
Phase 2	Paving	Paving Equipment	2	8	132	0.36	62	47,140
Phase 2	Paving	Rollers	2	8	80	0.38	62	30,157
Phase 2	Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	62	17,801

Phase 3	Demolition	Concrete/Industrial Saws	1	8	81	0.73	30	14,191
Phase 3	Demolition	Excavators	3	8	158	0.38	30	43,229
Phase 3	Demolition	Rubber Tired Dozers	2	8	247	0.4	30	47,424
Phase 3	Site Preparation	Rubber Tired Dozers	3	8	247	0.4	30	71,136
Phase 3	Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	30	34,454
Phase 3	Grading	Excavators	2	8	158	0.38	45	43,229
Phase 3	Grading	Graders	1	8	187	0.41	45	27,601
Phase 3	Grading	Rubber Tired Dozers	1	8	247	0.4	45	35,568
Phase 3	Grading	Scrapers	2	8	367	0.48	45	126,835
Phase 3	Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	45	25,841
Phase 3	Building Construction	Cranes	1	7	231	0.29	370	173,504
Phase 3	Building Construction	Forklifts	3	8	89	0.2	370	158,064
Phase 3	Building Construction	Generator Sets	1	8	84	0.74	370	183,994
Phase 3	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	370	278,865
Phase 3	Building Construction	Welders	1	8	46	0.45	370	61,272
Phase 3	Architectural Coating	Air Compressors	1	6	78	0.48	370	83,117
Phase 3	Paving	Cement and Mortar Mixers	2	6	9	0.56	175	10,584
Phase 3	Paving	Pavers	2	8	130	0.42	132	115,315
Phase 3	Paving	Paving Equipment	2	8	132	0.36	132	100,362
Phase 3	Paving	Rollers	2	8	80	0.38	132	64,205
Phase 3	Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	132	37,900
Phase 4	Demolition	Concrete/Industrial Saws	1	8	81	0.73	30	14,191
Phase 4	Demolition	Excavators	2	8	158	0.38	30	28,819
Phase 4	Demolition	Rubber Tired Dozers	2	8	247	0.4	30	47,424
Phase 4	Site Preparation	Rubber Tired Dozers	1	8	247	0.4	30	23,712
Phase 4	Site Preparation	Tractors/Loaders/Backhoes	1	8	97	0.37	30	8,614
Phase 4	Grading	Excavators	1	8	158	0.38	20	9,606
Phase 4	Grading	Graders	1	8	187	0.41	20	12,267
Phase 4	Grading	Rubber Tired Dozers	1	8	247	0.4	20	15,808
Phase 4	Grading	Tractors/Loaders/Backhoes	3	8	97	0.37	20	17,227
Phase 4	Building Construction	Cranes	1	7	231	0.29	230	107,854
Phase 4	Building Construction	Forklifts	3	8	89	0.2	230	98,256
Phase 4	Building Construction	Generator Sets	1	8	84	0.74	230	114,374
Phase 4	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	230	173,349
Phase 4	Building Construction	Welders	1	8	46	0.45	230	38,088
Phase 4	Paving	Cement and Mortar Mixers	2	6	9	0.56	20	1,210
Phase 4	Paving	Pavers	1	8	130	0.42	20	8,736
Phase 4	Paving	Paving Equipment	2	6	132	0.36	20	11,405
Phase 4	Paving	Rollers	2	6	80	0.38	20	7,296
Phase 4	Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	20	5,742
Phase 4	Architectural Coating	Air Compressors	1	6	78	0.48	90	20,218
Phase 5	Demolition	Concrete/Industrial Saws	1	8	81	0.73	30	14,191
Phase 5	Demolition	Rubber Tired Dozers	1	8	247	0.4	30	23,712
Phase 5	Demolition	Tractors/Loaders/Backhoes	3	8	97	0.37	30	25,841
Phase 5	Site Preparation	Graders	1	8	187	0.41	30	18,401
Phase 5	Site Preparation	Rubber Tired Dozers	1	7	247	0.4	30	20,748
Phase 5	Site Preparation	Tractors/Loaders/Backhoes	1	8	97	0.37	30	8,614
Phase 5	Grading	Graders	1	6	187	0.41	20	9,200
Phase 5	Grading	Rubber Tired Dozers	1	6	247	0.4	20	11,856
Phase 5	Grading	Tractors/Loaders/Backhoes	1	7	97	0.37	20	5,025
Phase 5	Building Construction	Cranes	1	6	231	0.29	230	92,446
Phase 5	Building Construction	Forklifts	1	6	89	0.2	230	24,564
Phase 5	Building Construction	Generator Sets	1	8	84	0.74	230	114,374
Phase 5	Building Construction	Tractors/Loaders/Backhoes	1	6	97	0.37	230	49,528
Phase 5	Building Construction	Welders	3	8	46	0.45	230	114,264
Phase 5	Paving	Cement and Mortar Mixers	1	6	9	0.56	20	605
Phase 5	Paving	Pavers	1	6	130	0.42	20	6,552
Phase 5	Paving	Paving Equipment	1	8	132	0.36	20	7,603
Phase 5	Paving	Rollers	1	7	80	0.38	20	4,256
Phase 5	Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	20	5,742
Phase 5	Architectural Coating	Air Compressors	1	6	78	0.48	90	20,218

Phase 6	Demolition	Concrete/Industrial Saws	1	8	81	0.73	30	14,191
Phase 6	Demolition	Rubber Tired Dozers	1	8	247	0.4	30	23,712
Phase 6	Demolition	Tractors/Loaders/Backhoes	3	8	97	0.37	30	25,841
Phase 6	Site Preparation	Graders	1	8	187	0.41	30	18,401
Phase 6	Site Preparation	Rubber Tired Dozers	1	7	247	0.4	30	20,748
Phase 6	Site Preparation	Tractors/Loaders/Backhoes	1	8	97	0.37	30	8,614
Phase 6	Grading	Graders	1	6	187	0.41	20	9,200
Phase 6	Grading	Rubber Tired Dozers	1	6	247	0.4	20	11,856
Phase 6	Grading	Tractors/Loaders/Backhoes	1	7	97	0.37	20	5,025
Phase 6	Building Construction	Cranes	1	6	231	0.29	230	92,446
Phase 6	Building Construction	Forklifts	1	6	89	0.2	230	24,564
Phase 6	Building Construction	Generator Sets	1	8	84	0.74	230	114,374
Phase 6	Building Construction	Tractors/Loaders/Backhoes	1	6	97	0.37	230	49,528
Phase 6	Building Construction	Welders	3	8	46	0.45	230	114,264
Phase 6	Paving	Cement and Mortar Mixers	1	6	9	0.56	20	605
Phase 6	Paving	Pavers	1	6	130	0.42	20	6,552
Phase 6	Paving	Paving Equipment	1	8	132	0.36	20	7,603
Phase 6	Paving	Rollers	1	7	80	0.38	20	4,256
Phase 6	Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	20	5,742
Phase 6	Architectural Coating	Air Compressors	1	6	78	0.48	90	20,218
Phase 7	Demolition	Concrete/Industrial Saws	1	8	81	0.73	30	14,191
Phase 7	Demolition	Excavators	3	8	158	0.38	30	43,229
Phase 7	Demolition	Rubber Tired Dozers	2	8	247	0.4	30	47,424
Phase 7	Site Preparation	Rubber Tired Dozers	1	8	247	0.4	30	23,712
Phase 7	Site Preparation	Tractors/Loaders/Backhoes	1	8	97	0.37	30	8,614
Phase 7	Grading	Excavators	1	8	158	0.38	20	9,606
Phase 7	Grading	Graders	1	8	187	0.41	20	12,267
Phase 7	Grading	Rubber Tired Dozers	1	8	247	0.4	20	15,808
Phase 7	Grading	Tractors/Loaders/Backhoes	3	8	97	0.37	20	17,227
Phase 7	Building Construction	Cranes	1	7	231	0.29	230	107,854
Phase 7	Building Construction	Forklifts	3	8	89	0.2	230	98,256
Phase 7	Building Construction	Generator Sets	1	8	84	0.74	230	114,374
Phase 7	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	230	173,349
Phase 7	Building Construction	Welders	1	8	46	0.45	230	38,088
Phase 7	Paving	Pavers	2	8	130	0.42	20	17,472
Phase 7	Paving	Paving Equipment	2	8	132	0.36	20	15,206
Phase 7	Paving	Rollers	2	8	80	0.38	20	9,728
Phase 7	Architectural Coating	Air Compressors	1	6	78	0.48	90	20,218
Phase 8	Demolition	Concrete/Industrial Saws	1	8	81	0.73	30	14,191
Phase 8	Demolition	Excavators	3	8	158	0.38	30	43,229
Phase 8	Demolition	Rubber Tired Dozers	2	8	247	0.4	30	47,424
Phase 8	Site Preparation	Rubber Tired Dozers	3	8	247	0.4	30	71,136
Phase 8	Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	30	34,454
Phase 8	Grading	Excavators	2	8	158	0.38	35	33,622
Phase 8	Grading	Graders	1	8	187	0.41	35	21,468
Phase 8	Grading	Rubber Tired Dozers	1	8	247	0.4	35	27,664
Phase 8	Grading	Scrapers	2	8	367	0.48	35	98,650
Phase 8	Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	35	20,098
Phase 8	Building Construction	Bore/Drill Rigs	1	8	221	0.5	370	327,080
Phase 8	Building Construction	Cranes	1	7	231	0.29	370	173,504
Phase 8	Building Construction	Forklifts	3	8	89	0.2	370	158,064
Phase 8	Building Construction	Generator Sets	1	8	84	0.74	370	183,994
Phase 8	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	370	278,865
Phase 8	Building Construction	Welders	1	8	46	0.45	370	61,272
Phase 8	Paving	Pavers	2	8	130	0.42	20	17,472
Phase 8	Paving	Paving Equipment	2	8	132	0.36	20	15,206
Phase 8	Paving	Rollers	2	8	80	0.38	20	9,728
Phase 8	Architectural Coating	Air Compressors	1	6	78	0.48	150	33,696
							Total >50	7,875,359
							Total <50	565,813

**Burbank De Soto
Construction Energy Analysis**

On-Road Haul Trucks

EMFAC2014 Diesel Fuel Consumption Factor:¹ 0.1390 gallons/mile miles/gallon
 Total Haul Truck VMT: 351,280 miles 7.20
Total VMT diesel gallons (on-road haul trucks): 48,819

EMFAC2014 Diesel Fuel Consumption Factor:² 0.6949 gallons/hour
 Total Haul Truck Idle-Hours per Year: 1,464 hours
Total Idling diesel gallons (on-road haul trucks): 1,017

*Estimated Fuel Savings from
 Anti-Idling Regulation (64 percent based on
 estimated CARB emissions reductions):³
 2,825*

Total diesel gallons (on-road haul trucks): 49,836 gal

1. California Air Resources Board, EMFAC2017 (South Coast Air Basin; T7 Single Construction; Annual; CY 2023; Aggregate MY; Aggregate Speed)

2. California Air Resources Board, EMFAC2017 (South Coast Air Basin; T7 Single Construction; Annual; CY 2023; Aggregate MY; 5 miles per hour converted to hourly rate)

3. Source: California Air Resources Board (CARB), 2004. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Appendix F, July 2004, <https://www.arb.ca.gov/regact/idling/idling.htm>, accessed November 2016.

Project Phase	Phase	Total One-Way				Idle Hours
		Days	Trips	Miles/Trip	VMT	
Phase 1	Demolition	40	920	20	18,400	77
Phase 1	Site Preparation	32	0	20	-	-
Phase 1	Grading	60	661	20	13,220	55
Phase 1	Building Construction	500	0	20	-	-
Phase 1	Paving	347	0	20	-	-
Phase 1	Architectural Coating	132	0	20	-	-
Phase 2	Demolition	30	540	20	10,800	45
Phase 2	Site Preparation	30	0	20	-	-
Phase 2	Grading	20	989	20	19,780	82
Phase 2	Building Construction	238	0	20	-	-
Phase 2	Architectural Coating	151	0	20	-	-
Phase 2	Paving	62	0	20	-	-
Phase 3	Demolition	30	880	20	17,600	73
Phase 3	Site Preparation	30	0	20	-	-
Phase 3	Grading	45	3296	20	65,920	275
Phase 3	Building Construction	370	0	20	-	-
Phase 3	Architectural Coating	175	0	20	-	-
Phase 3	Paving	132	0	20	-	-
Phase 4	Demolition	30	340	20	6,800	28
Phase 4	Site Preparation	30	0	20	-	-
Phase 4	Grading	20	566	20	11,320	47
Phase 4	Building Construction	230	0	20	-	-
Phase 4	Paving	20	0	20	-	-
Phase 4	Architectural Coating	90	0	20	-	-
Phase 5	Demolition	30	580	20	11,600	48
Phase 5	Site Preparation	30	0	20	-	-
Phase 5	Grading	20	1196	20	23,920	100
Phase 5	Building Construction	230	0	20	-	-
Phase 5	Paving	20	0	20	-	-
Phase 5	Architectural Coating	90	0	20	-	-
Phase 6	Demolition	30	830	20	16,600	69
Phase 6	Site Preparation	30	0	20	-	-
Phase 6	Grading	20	1254	20	25,080	105
Phase 6	Building Construction	230	0	20	-	-
Phase 6	Paving	20	0	20	-	-
Phase 6	Architectural Coating	90	0	20	-	-
Phase 7	Demolition	30	340	20	6,800	28
Phase 7	Site Preparation	30	0	20	-	-
Phase 7	Grading	20	2093	20	41,860	174
Phase 7	Building Construction	230	0	20	-	-
Phase 7	Paving	20	0	20	-	-
Phase 7	Architectural Coating	90	0	20	-	-
Phase 8	Demolition	30	887	20	17,740	74
Phase 8	Site Preparation	30	0	20	-	-
Phase 8	Grading	35	2192	20	43,840	183
Phase 8	Building Construction	370	0	20	-	-
Phase 8	Paving	75	0	20	-	-
Phase 8	Architectural Coating	40	0	20	-	-
				Total Haul Truck VMT:	351,280	
				Total Idle-Hours:	1,464	

Burbank De Soto
Construction Energy Analysis

On-Road Vendor Trucks

			miles/gallon
EMFAC2014 Diesel Fuel Consumption Factor: ¹	0.1205	gallons/mile	8.3
Total Vendor Truck VMT:	1,632,761	miles	
Total VMT diesel gallons (on-road vendor trucks):	196,681		
<i>Estimated Fuel Savings from</i>			
EMFAC2014 Diesel Fuel Consumption Factor: ²	0.7645	gallons/hour	<i>Anti-Idling Regulation (64 percent based on</i>
Total Haul Truck Idle-Hours per Year:	19,719	hours	<i>estimated CARB emissions reductions):³</i>
Total Idling diesel gallons (on-road haul trucks):	15,075		41,876
Total diesel gallons (on-road haul trucks):	211,757	gal	

1. California Air Resources Board, EMFAC2017 (South Coast Air Basin; HHDT and MHDT; Annual; CY 2023; Aggregate MY; Aggregate Speed)
2. California Air Resources Board, EMFAC2017 (South Coast Air Basin; HHDT and MHDT; Annual; CY 2023; Aggregate MY; 5 miles per hour converted to hourly rate)
3. Source: California Air Resources Board (CARB), 2004. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Appendix F, July 2004, <https://www.arb.ca.gov/regact/idling/idling.htm>, accessed November 2016.

Project Phase	Phase	Days	Trips/Day	Miles/Trip	VMT	Idle Hours
Phase 1	Demolition	40	0	6.9	-	-
Phase 1	Site Preparation	32	0	6.9	-	-
Phase 1	Grading	60	0	6.9	-	-
Phase 1	Building Construction	500	93	6.9	320,850	3,875
Phase 1	Paving	347	0	6.9	-	-
Phase 1	Architectural Coating	132	0	6.9	-	-
Phase 2	Demolition	30	0	6.9	-	-
Phase 2	Site Preparation	30	0	6.9	-	-
Phase 2	Grading	20	0	6.9	-	-
Phase 2	Building Construction	238	44	6.9	72,257	873
Phase 2	Architectural Coating	151	0	6.9	-	-
Phase 2	Paving	62	0	6.9	-	-
Phase 3	Demolition	30	0	6.9	-	-
Phase 3	Site Preparation	30	0	6.9	-	-
Phase 3	Grading	45	0	6.9	-	-
Phase 3	Building Construction	370	172	6.9	439,116	5,303
Phase 3	Architectural Coating	175	0	6.9	-	-
Phase 3	Paving	132	0	6.9	-	-
Phase 4	Demolition	30	0	6.9	-	-
Phase 4	Site Preparation	30	0	6.9	-	-
Phase 4	Grading	20	0	6.9	-	-
Phase 4	Building Construction	230	39	6.9	61,893	748
Phase 4	Paving	20	0	6.9	-	-
Phase 4	Architectural Coating	90	0	6.9	-	-
Phase 5	Demolition	30	0	6.9	-	-
Phase 5	Site Preparation	30	0	6.9	-	-
Phase 5	Grading	20	0	6.9	-	-
Phase 5	Building Construction	230	49	6.9	77,763	939
Phase 5	Paving	20	0	6.9	-	-
Phase 5	Architectural Coating	90	0	6.9	-	-
Phase 6	Demolition	30	0	6.9	-	-
Phase 6	Site Preparation	30	0	6.9	-	-
Phase 6	Grading	20	0	6.9	-	-
Phase 6	Building Construction	230	56	6.9	88,872	1,073
Phase 6	Paving	20	0	6.9	-	-
Phase 6	Architectural Coating	90	0	6.9	-	-
Phase 7	Demolition	30	0	6.9	-	-
Phase 7	Site Preparation	30	0	6.9	-	-
Phase 7	Grading	20	0	6.9	-	-
Phase 7	Building Construction	230	95	6.9	150,765	1,821
Phase 7	Paving	20	0	6.9	-	-
Phase 7	Architectural Coating	90	0	6.9	-	-
Phase 8	Demolition	30	0	6.9	-	-
Phase 8	Site Preparation	30	0	6.9	-	-
Phase 8	Grading	35	0	6.9	-	-
Phase 8	Building Construction	370	165	6.9	421,245	5,088
Phase 8	Paving	75	0	6.9	-	-
Phase 8	Architectural Coating	40	0	6.9	-	-
Total Vendor Truck VMT:					1,632,761	
Total Idle-Hours:						19,719

**Burbank De Soto
Construction Energy Analysis**

On-Road Workers (LDA, LDT1, LDT2)

EMFAC2014 Gasoline Fuel Consumption Factor:¹ 0.0337 gallons/mile miles/gallon
 Total Worker VMT: 11,618,292 miles 29.7
Total VMT gasoline gallons (workers): 391,661

1. California Air Resources Board, EMFAC2017 (South Coast Air Basin; LDA, LDT1, LDT2; CY 2023; Aggregate MY; Aggregate Speed)

Project Phase	Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Phase 1	Demolition	40	15	14.7	8,820
Phase 1	Site Preparation	32	18	14.7	8,467
Phase 1	Grading	60	15	14.7	13,230
Phase 1	Building Construction	500	413	14.7	3,035,550
Phase 1	Paving	347	20	14.7	102,018
Phase 1	Architectural Coating	132	83	14.7	161,053
Phase 2	Demolition	30	23	14.7	10,143
Phase 2	Site Preparation	30	23	14.7	10,143
Phase 2	Grading	20	15	14.7	4,410
Phase 2	Building Construction	238	204	14.7	713,714
Phase 2	Architectural Coating	151	41	14.7	91,008
Phase 2	Paving	62	20	14.7	18,228
Phase 3	Demolition	30	15	14.7	6,615
Phase 3	Site Preparation	30	18	14.7	7,938
Phase 3	Grading	45	20	14.7	13,230
Phase 3	Building Construction	370	392	14.7	2,132,088
Phase 3	Architectural Coating	175	78	14.7	200,655
Phase 3	Paving	132	15	14.7	29,106
Phase 4	Demolition	30	15	14.7	6,615
Phase 4	Site Preparation	30	18	14.7	7,938
Phase 4	Grading	20	15	14.7	4,410
Phase 4	Building Construction	230	101	14.7	341,481
Phase 4	Paving	20	20	14.7	5,880
Phase 4	Architectural Coating	90	20	14.7	26,460
Phase 5	Demolition	30	13	14.7	5,733
Phase 5	Site Preparation	30	8	14.7	3,528
Phase 5	Grading	20	8	14.7	2,352
Phase 5	Building Construction	230	199	14.7	672,819
Phase 5	Paving	20	13	14.7	3,822
Phase 5	Architectural Coating	90	40	14.7	52,920
Phase 6	Demolition	30	13	14.7	5,733
Phase 6	Site Preparation	30	8	14.7	3,528
Phase 6	Grading	20	8	14.7	2,352
Phase 6	Building Construction	230	257	14.7	868,917
Phase 6	Paving	20	13	14.7	3,822
Phase 6	Architectural Coating	90	51	14.7	67,473
Phase 7	Demolition	30	15	14.7	6,615
Phase 7	Site Preparation	30	18	14.7	7,938
Phase 7	Grading	20	15	14.7	4,410
Phase 7	Building Construction	230	218	14.7	737,058
Phase 7	Paving	20	15	14.7	4,410
Phase 7	Architectural Coating	90	44	14.7	58,212
Phase 8	Demolition	30	15	14.7	6,615
Phase 8	Site Preparation	30	18	14.7	7,938
Phase 8	Grading	35	20	14.7	10,290
Phase 8	Building Construction	370	379	14.7	2,061,381
Phase 8	Paving	75	15	14.7	16,538
Phase 8	Architectural Coating	40	76	14.7	44,688
Total Worker VMT:					11,618,292

O-2 Existing Site and Project Operational Energy Calculations

**Burbank De Soto
Operational Energy Analysis**

Energy and VMT Estimates

	Natural Gas		Electricity demand	
Source	demand (million kBTU/yr)	Electricity demand (million kWh/yr)	from water demand (million kWh/yr)	Annual Worker and Visitor VMT
Burbank De Soto Mixed Use	37.22	29.957	5.004	48,322,245
Existing Site	5.03	5.66	1.158	9,237,680
Net Total	32.191	24.297	3.845	
	CalEEMod		Total Water Use	Electricity Demand from water Demand
Source	Indoor Water Use (Mgal/yr)	Outdoor Water Use (Mgal/yr)	(Mgal/yr)	(million kWh)
Burbank De Soto Mixed Use	242.4	166.2	408.684	5.004
Existing Site	58.7	35.5	94.173	1.158
Net Total	183.738	130.773	314.511	3.845
CalEEMod Water Electricity Factors	Electricity Intensity Factor To Supply (kWh/Mgal)	Electricity Intensity Factor To Treat (kWh/Mgal)	Electricity Intensity Factor To Distribute (kWh/Mgal)	Electricity Intensity Factor For Wastewater Treatment (kWh/Mgal)
Burbank De Soto Mixed Use	9727	111	1272	1911

Source: California Emissions Estimator Model (CalEEMod).

Burbank De Soto
Operational Energy Analysis
Project Trips
Fuel Usage from VMT

Annual VMT (All): 48,322,245 miles/year
(With trip and VMT reductions from land use characteristics and proximity to public transit.)

Fuel Type: ¹	GAS	DSL	ELEC
Percent:	93.63%	4.39%	1.99%
Miles per Gallon Fuel:	24.76	8.67	-
Annual VMT by Fuel Type :	45,244,118	2,121,347	961,613 miles/year
Annual Fuel Usage :	1,827,307	244,761	- gal/year
Annual Fuel Savings from Electric Vehicles: ²	-	-	38,837 gal/year (assumed to be gasoline)

Notes:

- California Air Resources Board, EMFAC2017, South Coast Air Basin; 2024; Annual; All vehicle types; Aggregate model year; Aggregate speed).
<https://www.arb.ca.gov/emfac/2017/>
- Assumes electric vehicles would replace traditional gasoline-fueled vehicles.

Burbank De Soto
Operational Energy Analysis
Existing Trips
Fuel Usage from VMT

Annual VMT (All): 9,237,680 miles/year
(With trip and VMT reductions from land use characteristics and proximity to public transit.)

Fuel Type: ¹	GAS	DSL	ELEC
Percent:	95.51%	3.75%	0.74%
Miles per Gallon Fuel:	22.60	8.25	-
Annual VMT by Fuel Type :	8,822,908	346,413	68,359 miles/year
Annual Fuel Usage :	390,382	41,988	- gal/year
Annual Fuel Savings from Electric Vehicles: ²	-	-	3,025 gal/year (assumed to be gasoline)

Notes:

1. California Air Resources Board, EMFAC2017, South Coast Air Basin; 2018; Annual; All vehicle types; Aggregate model year; Aggregate speed).
<https://www.arb.ca.gov/emfac/2017/>
2. Assumes electric vehicles would replace traditional gasoline-fueled vehicles.