

Appendix B

Energy Calculations

Water Usage for Control of Fugitive Dust during Construction

Phase	Days	Average Daily Acentage Disturbed	Total Gallons
Demolition	22	0	0
Site Preparation	3	1.5	13,590
Grading	7	1	21,140
Building Construction	402	0	0
Paving	11	0	0
Architectural Coating	22	0	0
		Total	34,730

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

Notes:

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 & V Management Association Air Pollution Engineering Manual (1992 Edition)) and average of 2 construction days per month.

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

Electricity

0
136
211
0
0
0
347

Vaste
16

ed with

CONSTRUCTION - OFFROAD (Diesel)

Phase Name	Offroad Equipment Type	Amount
Architectural Coating	Air Compressors	1
Paving	Cement Mortar Mixers	1
Demolition	Concrete/Industrial Saws	1
Building Construction	Generator Sets	1
Building Construction	Cranes	1
Building Construction	Forklifts	2
Site Preparation	Graders	1
Paving	Pavers	1
Paving	Rollers	2
Demolition	Rubber Tired Dozers	1
Grading	Rubber Tired Dozers	1
Building Construction	Tractors/Loaders/Backhoes	1
Demolition	Tractors/Loaders/Backhoes	3
Grading	Tractors/Loaders/Backhoes	2
Paving	Tractors/Loaders/Backhoes	1
Site Preparation	Tractors/Loaders/Backhoes	1
Grading	Graders	1
Paving	Paving Equipment	1
Site Preparation	Scrapers	1
Building Construction	Welders	3

CONSTRUCTION - ONROAD (diesel)

Phase Name	Days	Daily Vendor Trips
Demolition	22	0
Site Preparation	3	0
Grading	7	0
Building Construction	402	16
Paving	11	0
Architectural Coating	22	0

CONSTRUCTION - ONROAD (gasoline)

Phase Name	Days	Daily Worker Trips
Demolition	22	13
Site Preparation	3	8
Grading	7	10
Building Construction	402	74
Paving	11	15
Architectural Coating	22	15

TOTAL GALLONS

Gasoline

19,730

Diesel

58,280

Notes:

Usage Hours	HP		Gal of Diesel	Load Factor
	8	78	0.05	0.48
	8	9	0.05	0.56
	8	81	0.05	0.73
	8	84	0.05	0.74
	8	231	0.05	0.29
	8	89	0.05	0.2
	8	187	0.05	0.41
	8	130	0.05	0.42
	8	80	0.05	0.38
	8	247	0.05	0.4
	8	247	0.05	0.4
	8	97	0.05	0.37
	8	97	0.05	0.37
	8	97	0.05	0.37
	8	97	0.05	0.37
	8	97	0.05	0.37
	8	187	0.05	0.41
	8	132	0.05	0.36
	8	367	0.05	0.48
	8	46	0.05	0.45

Vendor Trip Length	Total Vendor Length	Vendor mpg	Total Gallons
6.9	0	6.272	0
6.9		6.272	0
6.9	0	6.272	0
6.9	44380.8	6.272	7076.020408
6.9	0	6.272	0
6.9	0	6.272	0

Worker Trip Length	Total Worker Length	Worker mpg	Total Gallons
14.7	4204.2	22.816	184.2654278
14.7	352.8	22.816	15.4628331
14.7	1029	22.816	45.09992987
14.7	437295.6	22.816	19166.18163
14.7	2425.5	22.816	106.3069776
14.7	4851	22.816	212.6139551
			19729.93075

Days	Total Gallons
22	329.472
11	22.176
22	520.344
402	9995.328
402	10771.992
402	5724.48
3	92.004
11	240.24
11	267.52
22	869.44
7	276.64
402	5771.112
22	947.496
7	200.984
11	157.916
3	43.068
7	214.676
11	209.088
3	211.392
402	9985.68
	46851.048

Total Hauling Trips	Hauling Trip Length	Total Hauling Miles	Hauling mpg
465	20	9300	6.272
0	20	0	6.272
900	20	18000	6.272
0	20	0	6.272
0	20	0	6.272
0	20	0	6.272

Total Gallons	Total Vendor and Hauling Gallons
1482.780612	1482.780612
0	0
2869.897959	2869.897959
0	7076.020408
0	0
0	0
	11428.69898

Land Use	Electricity Use (kWh/yr)	Indoor (Mgal/yr)	Water
Congregate Care (Assisted Living)	269285	4.43047	
Enclosed Parking with Elevator	192208	0	
Single Family Housing	239271	1.95462	
Total	700,764	6	

Notes: Indoor Water results in 0.0111 kWhr of electricity usage per gallon from delivery and distribution. Outdoor Water results in 0.009727 kWhr of electricity usage per gallon from delivery and distribution.

UNMITIGATED

Usage

Outdoor (Mgal/yr)	Water-Related Electricity Use (kWhr/yr)	Total Annual Electricity Use (kWhr)
2.79312	76346.89524	345,632
0	0	192,208
1.23226	33682.47502	272,953
4	110,029	810,793

very, treatment, and distribution of water within Souther California (CalEEMod). Outdoor water
in of water within Southern california (CalEEMod).

UNMITIGATED

Land Use	Natural Gas Use (kBTU/yr)	Natural Gas Use (cf/yr)
Congregate Care (Assisted Living)	626752	643048
Enclosed Parking with Elevator	0	0
Single Family Housing	824888	846335
Total	1,451,640	1,489,383

Notes:

1 kBTU/yr =

1.026 cf/yr

Natural Gas Use (cf/day)

1762

0

2319

4,081

Land Use	Average Daily Trip Rate			Annual VMT
	Weekday	Saturday	Sunday	
Congregate Care (Assisted Living)	116.96	116.96	116.96	399670
Enclosed Parking with Elevator	0	0	0	0
Single Family Housing	122.1	122.1	122.1	417234
Total	239	239	239	816,904

Gasoline and Diesel Usage

	Gasoline	Diesel
Miles/Gallon	18.6	7.4
% Fleet Mix	93.5	6.5