

APPENDIX C:

ENERGY DEMAND ANALYSIS WORKSHEETS

Water Budget Calculations
Maximum Applied Water Allowance (MAWA) ^[a]

Project: Enlightenment Plaza
Scenario: Proposed Project Conditions
Equation: MAWA = (Eto) (0.62) [(0.7 x LA) + (0.3 x SLA)]

Where:

MAWA= Maximum Applied Water Allowance
Eto= 50.1 Reference Evapotranspiration from Appendix C (inches per year) ^[b]
0.55 ET Adjustment Factor
LA= 7,627 Landscaped Area includes Special Landscaped Area (square feet) ^[c]
0.62= Conversion Factor (to gallons per square foot)
SLA= Portion of the landscaped area identified as Special Landscape Area (square feet) ^[d]
0.45= the additional ET Adjustment Factor for Sepcial Landscape Area (1.0 - 0.55 = 0.45)

Maximum Applied Water Allowance = 130,300 gallons per year

Calculations:

$\begin{aligned} \text{MAWA} &= (50.1) (0.62) [(0.55 * 7,627) + (0.45 * 0)] \\ &= 130,300 \text{ gallons per year (gpy)} \\ &= 357 \text{ gallons per day (gpd)} \\ &= 0.40 \text{ acre-feet per year (AF/y)} \end{aligned}$
--

Notes:

^[a] City of Los Angeles Green Building Code, Sec. 99.04.304, Outdoor Water Use.

^[b] See Appendix C - Reference Evapotranspiration (Eto) Table (attached).

^[c] See Enlightenment Plaza Project Landscape Concept Plan, Submittal Sheet L100, dated November 18, 2019.

^[d] No Special Landscaped Area was applied.

Source: Parker Environmental Consultants, 2020

Total Diesel Usage From Construction Equipment

Phase	Off-Road Equipment Type	Units	Hours	HP	Load Factor	Ave. Daily Factor	Number of Days	Diesel Usage (gallons)
Site Preparation	Grader	1	8	187	0.41	0.6	20	1398
Site Preparation	Tractor/Loader/Backhoe	1	7	97	0.37	0.6	20	151
Site Preparation	Scraper	1	8	187	0.41	0.6	20	1398
Demolition	Concrete/Industrial Saws	1	8	81	0.73	0.6	10	142
Demolition	Tractor/Loader/Backhoe	3	8	97	0.37	0.6	10	86
Demolition	Rubber Tired Dozer	1	8	247	0.4	0.6	10	237
Grading	Rubber Tired Dozer	1	8	247	0.4	0.6	44	1043
Grading	Tractor/Loader/Backhoe	2	7	97	0.37	0.6	44	332
Grading	Grader	1	8	187	0.41	0.6	44	810
Building Construction	Cranes	1	8	231	0.29	0.6	350	5627
Building Construction	Forklifts	2	7	89	0.2	0.6	350	1308
Building Construction	Tractor/Loader/Backhoe	1	6	97	0.37	0.6	350	2261
Building Construction	Generator Sets	1	8	84	0.74	0.6	350	5221
Building Construction	Welders	3	8	46	0.45	0.6	350	1739
Architectural Coating	Air Compressors	4	6	78	0.48	0.6	95	640
Architectural Coating	Aerial Lifts	4	6	63	0.31	0.6	95	334
Paving	Cement and Mortar Mixers	1	8	9	0.56	0.6	10	12
Paving	Pavers	1	8	130	0.42	0.6	10	131
Paving	Rollers	2	8	80	0.38	0.6	10	73
Paving	Tractor/Loader/Backhoe	1	8	97	0.37	0.6	10	86
							TOTAL	20,083

Sources: Equipment usage (hours and total days), horsepower (HP) and load factors are per the CalEEMod Worksheets; Fuel rate calculation is per the SCAQMD Air Quality Handbook (1993).

Electricity Usage from Watering During Construction (AQMD Rule 403: Fugitive Dust)

Phase	Watering Days	Ave. Daily Acreage Disturbed	Water Use (gallons)	Electricity (kWhr)
Grading	44	3	398,640	3,877.57
			TOTAL	3,877.57

Notes:

1. Water Application Rate= 3,020 gal/acre/day per Air & Waste Management Association Air Pollution Engineering Manual (1992 Edition).
2. kWhr equivalent = 0.01 kWhr
3. Electricity consumption per water usage = 0.009727 kWhr/gallon.

Construction Worker and Vendor Gasoline Consumption

Phase	Daily Trips		Days	Total Trips		Trip Length		Ave. Daily Factor	Gasoline Usage (gallons)	Diesel Usage (gallons)
	Worker	Vendor		Worker	Vendor	Worker	Vendor			
Demolition	13	0	10	130	0	14.7	6.9	0.6	40	-
Site Preparation	8	0	20							
Grading	10	0	44	440	0	14.7	6.9	0.6	3,881	-
Building Construction	327	49	350	114450	17150	14.7	6.9	0.6	1,011,953	80,391
Architectural Coatings	65	0	95	6175	0	14.7	6.9	0.6	54,464	-
Paving	15	0	10	150	0	14.7	6.9	0.6	1,323	-
TOTAL	438	49	529	121345	17150				1,071,661	80,391

Notes: Assumes an average fuel efficiency of 28.35 miles per gallon (mpg) for gasoline and 6.27 mpg for diesel per Table 7, Statewide Vehicle Fuel Economy Miles Per Gallon, 2007 California Motor Vehicle Stock Travel and Fuel Forecast (May 2008).

Haul Truck Diesel Consumption

Phase	Days	Haul Trips	Trip Length	Diesel Usage (Gallons)
Demolition	10	43	8	55
Site Preparation	20	120	25	478
Grading	44	435	25	1,734
	74	598		2,267

Notes: Assumes an average fuel efficiency of 28.35 miles per gallon (mpg) for gasoline and 6.27 mpg for diesel per Table 7, Statewide Vehicle Fuel Economy Miles Per Gallon, 2007 California Motor Vehicle Stock Travel and Fuel Forecast (May 2008).

Enlightenment Plaza - Existing Conditions (to be demolished)
Operational Fuel Calculations

Land Use	Units	Average Daily Trip Rate			Annual VMT
		Weekday	Sat	Sunday	
Light Manufacturing	7.81 ksf	140.58	140.58	140.58	622,527
SF Residential	3 DU	25.56	25.56	25.56	96,847
		166.14	166.14	166.14	719,374

Fleet Mix	
LDA	0.549559
LDT1	0.042893
LDT2	0.201564
MDV	0.118533
LHD1	0.015569
LHD2	0.005846
MHD	0.021394
HHD	0.034255
OBUS	0.002099
UBUS	0.001828
MCY	0.004855
SBUS	0.000709
MH	0.000896

	Fleet Factor	VMT	Fuel (gallons)
Diesel	0.06	43,162.44	6,883.96
Gas	0.94	676,211.56	23,852.26
		719,374.00	

Notes: Assumes an average fuel efficiency of 28.35 miles per gallon (mpg) for gasoline and 6.27 mpg for diesel per Table 7, Statewide Vehicle Fuel Economy Miles Per Gallon, 2007 California Motor Vehicle Stock Travel and Fuel Forecast (May 2008).

**Enlightenment Plaza
Operational Fuel Calculations**

Land Use	Units	Average Daily Trip Rate			Annual VMT
		Weekday	Sat	Sunday	
Apartments (Mid Rise)	454	576.58	576.58	576.58	1,970,261
		576.58	576.58	576.58	1,970,261

Fleet Mix	
LDA	0.549559
LDT1	0.042893
LDT2	0.201564
MDV	0.118533
LHD1	0.015569
LHD2	0.005846
MHD	0.021394
HHH	0.034255
OBUS	0.002099
UBUS	0.001828
MCY	0.004855
SBUS	0.000709
MH	0.000896

	Fleet Factor	VMT	Fuel (gallons)
Diesel	0.06	118,215.66	18,854.17
Gas	0.94	1,852,045.34	65,327.88
		1,970,261.00	

Notes: Assumes an average fuel efficiency of 28.35 miles per gallon (mpg) for gasoline and 6.27 mpg for diesel per Table 7, Statewide Vehicle Fuel Economy Miles Per Gallon, 2007 California Motor Vehicle Stock Travel and Fuel Forecast (May 2008).