

Appendix B

Energy Calculations

Construction Fuel Consumption

On-Site Diesel ¹	MTCO ₂ e	Gallons of Fuel ⁴	San Bernardino County Construction Year 2023 County Fuel	Percent
Demolition	69	6,791		
Site Preparation/Grading	223	21,973		
Building Construction	140	13,744		
Paving	116	11,398		
Architectural Coating	3	302		
Total	550	54,209	279,150,963	0.0194%

Off-Site Diesel ¹				
Demolition	12	1,182		
Site Preparation/Grading	0	0		
Building Construction	13	1,234		
Paving	0	0		
Architectural Coating	0	0		
Total	25	2,417	279,150,963	0.0009%

Off-Site Gasoline ²				
Demolition	4	422		
Site Preparation/Grading	11	1,195		
Building Construction	12	1,407		
Paving	17	1,897		
Architectural Coating	0	45		
Total	44	4,967	865,975,498	0.0006%

Total Diesel Fuel		56,626	279,150,963	0.0203%
Total Gasoline Fuel		4,967	865,975,498	0.0006%
Total Construction Fuel	619	61,593		

Construction Phase ³	Demolition			Site Preparation			Grading		
	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)
2022	69	12	4	0	0	0	0	0	0
2023				83		4	140	0	7
Total	69	12	4	83	0	4	140	0	7

Construction Phase ³	Building Construction			Paving			Architectural Coating		
	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)
2022	0	0	0	0	0	6	0		0
2023	140	13	12	116		11	3	0	0
Total	140	13	12	116	0	17	3	0	0

Notes:

¹ Fuel used for off-road, hauling, and vendor trips assumed to be diesel.

² Fuel used for worker trips assumed to be gasoline.

³ MTCO₂e rates from CalEEMod (3.0 Construction Details).

⁴ For CO₂e emissions, see Chapter 13 (page 94); Conversion Ratios: Climate Registry, General Reporting Protocol, 2016.

Climate Registry Conversion Ratios:

- Gasoline: 10.15 kg CO₂ per gallon / 1,000 kg per metric ton

Construction Water Energy

Daily Soil Disturbance ¹	2	acres
Days of Soil Disturbance ²	153	days
Water Concentration ³	3,020	gallons/acre
Water Energy Intensity ⁴	11,110	kWh/MG
Total Construction Water	0.92	million gallons
Construction Water Energy	10,267	kWh
	0.0103	GWh

Notes:

¹ Total daily acres disturbed from offroad equipment per CalEEMod (3.0 Construction Detail) and maximum SCAQMD LST values for soil-disturbing equipment.

² Number of days of construction (site prep and grading phases) with soil-disturbing equipment per CalEEMod (3.0 Construction Detail).

³ Water application rate per Air and Waste Management Association's Air Pollution Engineering Manual.

⁴ Water energy intensity factor for county subarea per CalEEMod User Guide, Appendix D, page D-343.

Operational Fuel - Ashley Furniture Expansion

Vehicle Type	Percent ¹	Annual VMT ²	MPG ³	Annual Fuel (Gallons)	Fuel Type	San Bernardino Gallons ⁴	San Bernardino Percent	
Passenger Cars	0.96	923,802	21.6	42,769	Gas	865,975,498	0.0049%	0.0014%
Light/Medium Trucks	0.02	18,346	17.2	1,067	Diesel	279,150,963	0.0004%	
Heavy Trucks/Other	0.02	16,562	6.1	2,715	Diesel	279,150,963	0.0010%	
Total Trucks		958,177						
Total				46,550		1,145,126,461		

Fleet Mix - Commerce Center I

Land Use	LDA	LDT1	LDT2	MCY	MDV	LHD1	LHD2	MHD	OBUS	UBUS	SBUS	MH	HHD
Parking	0	0	0	0	0	0	0	0	0	0	0	0	0
Home Improvement Superstore	0.537785	0.055838	0.172353	0.025303	0.139003	0.027005	0.007196	0.011392	0.000559	0.000254	0.000954	0.005071	0.017285
	0.537785	0.055838	0.172353	0.025303	0.139003	0.027005	0.007196	0.011392	0.000559	0.000254	0.000954	0.005071	0.017285

Notes:

- ¹ Percent of vehicle trip distribution based on fleet mix from CalEEMod (4.4 Fleet Mix).
² Total annual operational VMT based on mitigated annual VMT from CalEEMod (4.2 Trip Summary Information).
³ Average fuel economy derived from Department of Transportation.
⁴ Total annual county fuel per EMFAC 2021 model of projected operational fuel usage.

Operational Water Energy

Mitigated Indoor	2.1	million gallons
Indoor Energy Intensity Factor ¹	13,021	kWh/MG
Mitigated Outdoor	1	million gallons
Outdoor Energy Intensity Factor ²	11,110	kWh/MG
Operational Water Energy	43,583	kWh

Ashley Furniture Expansion				
Land Use ³	Unmitigated (MG)		Mitigated (MG)	
	Indoor	Outdoor	Indoor	Outdoor
Parking	0	0	0	0
Home Improvement Superstore	3	2	2	1
Total Operational Water	3	2	2	1

Notes:

¹ Indoor water energy intensity factor for county subarea per CalEEMod User Guide, Appendix D, page D-343. Factor includes supply, treatment, distribution, and wastewater.

² Outdoor water energy intensity factor for county subarea per CalEEMod User Guide, Appendix D, page D-343. Factor includes supply, treatment, and distribution.

³ Operational water use values per CalEEMod (7.2 Water by Land Use).

Electricity/Natural Gas Energy

	Mitigated Project	San Bernardino County	Percentage
	Annual Energy	Annual Energy ³	Increase
Electricity (kWh/yr)	431,086	16,180,811,158	0.0027%
Natural Gas (kBTU/yr)	77,000	56,136,061,700	0.0001%
Natural Gas (therms/yr)	770	561,360,617	0.0001%

Ashley Furniture Expansion				
Land Use	Electricity ¹ (kWh/yr)		Natural Gas ² (kBTU/yr)	
	Unmitigated	Mitigated	Unmitigated	Mitigated
Parking	6,189	6,186	0	0
Home Improvement Superstore	424,900	424,900	77,000	77,000
Total Energy	431,089	431,086	77,000	77,000

Notes:

¹ Electricity use per CalEEMod (5.3 Energy by Land Use).

² Natural Gas use per CalEEMod (5.2 Natural Gas by Land Use).

³ County total energy values from California Energy Commission energy reports available through ecdms.energy.ca.gov.