APPENDIX J:

ENERGY CALCULATION

Construction Fuel Consumption

On-Site Diesel[1]	$MTCO_2e$	Gallons of Fuel[4]	Construction Year 2024 San Bernardino County Fuel	Percent
Demolition	75	7,389		
Site Preparation/Grading	179	17,635		
Building Construction	202	19,901		
Paving	44	4,335		
Architectural Coating	8	788		
Total	508	50,049	280,907,070	0.0178%
Off-Site Diesel[1]				
Demolition	52	5,123		
Site Preparation/Grading	0	0		
Building Construction	101	9,951		
Paving	0	0		
Architectural Coating	0	0		
Total	153	15,074	280,907,070	0.0054%
Off-Site Gasoline[2]				
Demolition	3	341		
Site Preparation/Grading	8	953		
Building Construction	119	13,507		
Paving	2	227		
Architectural Coating	9	1,022		
Total	141	16,050	853,915,250	0.0019%
Total Diesel Fuel		65,123	280,907,070	0.0232%
Total Gasoline Fuel		16,050	853,915,250	0.0019%
Total Construction Fuel	802	81,173		

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)
2023	75	52	3	74	0	3	105	0	5
2024									
Total	**75**	**52**	**3**	**74**	**0**	**3**	**105**	**0**	**5**

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)
2023	101	51	60	21	0	1	0		0
2024	101	50	59	23	0	1	8	0	9
Total	**202**	**101**	**119**	**44**	**0**	**2**	**8**	**0**	**9**

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] $MTCO_2e$ 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 CO_2 per gallon / 1,000 kg per metric ton

Construction Water Energy

Daily Soil Disturbance[1]	3	acres
Days of Soil Disturbance[2]	124	days
Water Concentration[3]	3,020	gallons/acre
Water Energy Intensity[4]	11,110	kWh/MG
Total Construction Water	0.94	million gallons
Construction Water Energy	10,401	kWh
	0.0104	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 -W Valley Blvd

Vehicle Type	Percent[1]	Annual VMT[2]	MPG[3]	Annual Fuel (Gallons)	Fuel Type	San Bernardino Gallons[4]	San Bernardino Percent	
Passenger Cars	1.00	1,432,010	21.6	66,297	Gas	853,915,250	0.0078%	
Light/Medium Trucks	0.48	511,051	17.2	29,712	Diesel	280,907,070	0.0106%	0.0428%
Heavy Trucks/Other	0.52	553,000	6.1	90,656	Diesel	280,907,070	0.0323%	
Total Trucks		1,063,462						
Total				186,665		1,134,822,320		

Fleet Mix - W Valley Blvd

Land Use	LDA	LDT1	LDT2	MCY	MDV	LHD1	LHD2	MHD	OBUS	UBUS	SBUS	MH	HHD
City Park	0	0	0	0	0	0	0	0	0	0	0	0	0
Office	0.577752	0.056059	0.172680	0.025076	0.136494	0.026304	0	0	0.000554	0.000251	0.000000	0.00483	0
Parking	0	0	0	0	0	0	0	0	0	0	0	0	0
Unrefrigerated Warehouse - No Rail	0	0	0	0	0	0.0000	0.260000	0.220000	0.000000	0.000000	0.000000	0.000000	0.520000
	0.577752	**0.056059**	**0.172680**	**0.025076**	**0.136494**	**0.026304**	**0.260000**	**0.220000**	**0.000554**	**0.000251**	**0.000000**	**0.004830**	**0.520000**

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	33.0	million gallons
Indoor Energy Intensity Factor[1]	13,021	kWh/MG
Mitigated Outdoor	5	million gallons
Outdoor Energy Intensity Factor[2]	11,110	kWh/MG
Operational Water Energy	485,243	kWh

W Valley Blvd				
Land Use[3]	**Unmitigated (MG)**		**Mitigated (MG)**	
	Indoor	**Outdoor**	**Indoor**	**Outdoor**
City Park	0	1	0	1
General Office	7	4	5	4
Unrefrigerated Warehouse	35	0	28	0
Total Operational Water	**42**	**5**	**33**	**5**

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).

Elecricity/Natural Gas Energy

	Mitigated Project Annual Energy	San Bernardino County Annual Energy[3]	Percentage Increase
Electricity (kWh/yr)	745,817	16,180,811,158	0.0046%
Natural Gas (kBTU/yr)	427,842	56,136,061,700	0.0008%
Natural Gas (therms/yr)	4,278	561,360,617	0.0008%

CADO Warehouse				
Land Use	**Electricity[1] (kWh/yr)**		**Natural Gas[2] (kBTU/yr)**	
	Unmitigated	**Mitigated**	**Unmitigated**	**Mitigated**
City Park	0	0	0	0
General Office	342,796	342,796	127,942	127,942
Parking Lot	56,868	56,868	0	0
Unrefrigerated Warehouse-No Rail	346,153	346,153	299,900	299,900
Total Energy	**745,817**	**745,817**	**427,842**	**427,842**

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.