APPENDIX E

ENERGY ASSESSMENT

Construction Fuel Consumption

On-Site Diesel[1]	$MTCO_2e$	Gallons of Fuel[4]	Construction Year 2025 County Fuel	Percent
Demolition	72	7,083		
Site Preparation/Grading	144	14,143		
Building Construction	154	15,163		
Paving	43	4,274		
Architectural Coating	11	1,083		
Total	424	41,745	259,549,258	0.0161%
Off-Site Diesel[1]				
Demolition	1	111		
Site Preparation/Grading	497	48,995		
Building Construction	354	34,867		
Paving	0	0		
Architectural Coating	0	0		
Total	852	83,973	259,549,258	0.0324%
Off-Site Gasoline[2]				
Demolition	3	292		
Site Preparation/Grading	5	571		
Building Construction	427	48,476		
Paving	8	958		
Architectural Coating	54	6,116		
Total	497	56,412	698,621,144	0.0081%
Total Diesel Fuel		125,718	259,549,258	0.0484%
Total Gasoline Fuel		56,412	698,621,144	0.0081%
Total Construction Fuel	1,773	182,130		

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)
2024	72	1	3	56	0	2	88	497	3
2025									
Total	**72**	**1**	**3**	**56**	**0**	**2**	**88**	**497**	**3**

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)
2024	154	354	427	0	0	6	0		0
2025	0	0	0	43	0	3	11	0	54
Total	**154**	**354**	**427**	**43**	**0**	**8**	**11**	**0**	**54**

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]	4	acres
Days of Soil Disturbance[2]	65	days
Water Concentration[3]	3,020	gallons/acre
Water Energy Intensity[4]	11,110	kWh/MG
Total Construction Water	0.79	million gallons
Construction Water Energy	8,724	kWh
	0.0087	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 - CADO Warehouse

Vehicle Type	Percent[1]	Annual VMT[2]	MPG[3]	Annual Fuel (Gallons)	Fuel Type	Riverside Gallons[4]	Riverside Percent	
Passenger Cars	1.00	10,790,509	21.6	499,561	Gas	698,621,144	0.0715%	
Light/Medium Trucks	0.39	643,472	17.2	37,411	Diesel	259,549,258	0.0144%	0.0769%
Heavy Trucks/Other	0.61	988,980	6.1	162,128	Diesel	259,549,258	0.0625%	
Total Trucks	1.00	1,631,455		199,539	Diesel			
Total		12,422,961						

Fleet Mix

Vehicles	LDA	LDT1	LDT2	MCY	MDV	LHD1	LHD2	MHD	OBUS	UBUS	SBUS	MH	HHD
Passenger Vehicles	0.577845	0.056458	0.173793	0.023606	0.136090	0.025268	0	0	0.00061	0.000304	0.001094	0.004932	0
Trucks	0	0	0	0	0	0.0000	0.168142	0.225664	0.000000	0.000000	0.000000	0.000000	0.606195
	0.577845	**0.056458**	**0.173793**	**0.023606**	**0.136090**	**0.025268**	**0.168142**	**0.225664**	**0.000610**	**0.000304**	**0.001094**	**0.004932**	**0.606195**

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	129.1	million gallons
Indoor Energy Intensity Factor[1]	13,021	kWh/MG
Mitigated Outdoor	8	million gallons
Outdoor Energy Intensity Factor[2]	11,110	kWh/MG
Operational Water Energy	1,770,012	kWh

CADO Warehouse				
Land Use[3]	**Unmitigated (MG)**		**Mitigated (MG)**	
	Indoor	**Outdoor**	**Indoor**	**Outdoor**
City Park	0	7	0	7
General Office	2	1	1	1
Unrefrigerated Warehouse	160	0	128	0
Total Operational Water	**161**	**9**	**129**	**8**

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	Riverside County Annual Energy[3]	Percentage Increase
Electricity (kWh/yr)	328,124	17,780,573,271	0.0018%
Natural Gas (kBTU/yr)	1,421,270	43,105,239,200	0.0033%
Natural Gas (therms/yr)	14,213	431,052,392	0.0033%

CADO Warehouse				
Land Use	**Electricity[1] (kWh/yr)**		**Natural Gas[2] (kBTU/yr)**	
	Unmitigated	**Mitigated**	**Unmitigated**	**Mitigated**
City Park	0	0	0	0
Warehouse/General Office	409,150	327,320	1,421,270	1,421,270
Parking Lot	804	804	0	0
Total Energy	**409,954**	**328,124**	**1,421,270**	**1,421,270**

Notes:

[1] Electricity use provided by project developer and construction contractor

[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.

CADO Electricity Emissions

Electricity Consumption and Solar PV Production Estimates

49	kW(dc) PV system to service 20% of the buildings anticipated electral demand
81,830	kWh
409,150	kWh/year total building electricty demand

Electricity consumption provided by the project developer and construction contractor (via email 2/14/24).

Project Electricity Consumption

	KSF	kWh/yr	MWh/yr	CO_2e/yr
Building	700.04	409,150	409.15	65.07
Parking	917.50	803.73	0.80	0.13
		Total Unmitigated	*409.95*	*65.20*
Solar Electricity Generation		-81,830	-81.83	-13.01
		Total Mitigated	*328.12*	*52.18*

SCE Electricity Intensity Factor

CO_2e (Metric Tons/MWh)

2025	0.159

Source: CalEEMod 2022 Users Guide, Appendix G, Table G-3.

	Annual Energy Use	
	kWh/sq ft	kWh/KSF
Parking (Lighting)	0.876	0.000876

Source: CalEEMod 2022 Users Guide, Appendix D6, Page D-21.