

APPENDIX E

ENERGY CALCULATIONS

Menifee Compass (Site 1)

Construction Fuel Consumption

On-Site Diesel ¹ (off-road construction Equipment)	MTCO ₂ e	Gallons of Fuel ⁴	County Fuel in 2024 (Start of Construction)	Percent
Demolition	23	2,266		
Site Preparation/Grading	126	12,414		
Building Construction	104	10,246		
Paving	10	985		
Architectural Coating	2	179		
Total	265	26,091	134,914,259	0.0193%

Off-Site Diesel ¹ (on-road construction trips)	MTCO ₂ e	Gallons of Fuel ⁴	County Fuel in 2024 (Start of Construction)	Percent
Demolition	2	180		
Site Preparation/Grading	0	0		
Building Construction	61	6,010		
Paving	0	0		
Architectural Coating	0	0		
Total	63	6,190	134,914,259	0.0046%

Off-Site Gasoline ²	MTCO ₂ e	Gallons of Fuel ⁴	County Fuel in 2024 (Start of Construction)	Percent
Demolition	1	157		
Site Preparation/Grading	6	704		
Building Construction	65	7,378		
Paving	1	157		
Architectural Coating	4	418		
Total	78	8,813	528,333,714	0.0017%

Total Diesel Fuel		32,281	134,914,259	0.0239%
Total Gasoline Fuel		8,813	528,333,714	0.0017%
Total Construction Fuel	405	41,094		

Construction Phase ³	Demolition			Site Preparation			Grading		
	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)
2024	23	2	1	36	0	2	90	0	4
Total	23	2	1	36	0	2	90	0	4

Construction Phase ³	Infrastructure + Building Construction			Paving			Architectural Coating		
	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)
2024	104	61	65	10	0	1	0	0	1
2025	0	0	0	0	0	0	2	0	3
Total	104	61	65	10	0	1	2	0	4

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.

Construction Water Energy

Daily Soil Disturbance ¹	4	acres
Days of Soil Disturbance ²	45	days
Water Concentration ³	3,020	gallons/acre
Water Energy Intensity ⁴	11,110	kWh/MG
Total Construction Water	0.54	million gallons
Construction Water Energy	6,039	kWh
	0.0060	GWh
Riverside County Annual Electricity	17,781	GWh
Percentage Increase	0.00003%	

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 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

Vehicle Type	Percent	Annual VMT ¹	MPG ²	Annual Fuel (Gallons)	Fuel Type	Riverside County Fuel Consumption in 2025 (Operational Year) Gallons ³	RS Percent
Passenger Cars (Gasoline)	0.10	3,134,008	21.6	145,093	Gas	518,577,830	0.0280%
Light/Medium Trucks	0.40	596,154	17.2	34,660	Diesel	135,408,190	0.0256%
Heavy Trucks/Other	0.60	894,232	6.1	146,595	Diesel	135,408,190	0.1083%
Trucks Total		1,490,386		181,255		135,408,190	0.1339%
Total Annual VMT		4,624,394					

Total

Notes:

¹ Total annual operational VMT based on mitigated annual VMT from CalEEMod (5.9 Operational Mobile Sources).

² Average fuel economy derived from Department of Transportation.

³ Total annual county fuel per EMFAC 2017 model of projected operational fuel usage.

Operational Water Energy

Mitigated Indoor	61.0	million gallons
Indoor Energy Intensity Factor ¹	13,021	kWh/MG
Mitigated Outdoor	2	million gallons
Outdoor Energy Intensity Factor ²	11,110	kWh/MG
Operational Water Energy	816,501	kWh
Operational Water Energy	0.8165	GWh
Riverside County Annual Electricity	17,781	GWh
Percentage Increase	0.0046%	

Land Use ³	Unmitigated (MG)		Mitigated (MG)	
	Indoor	Outdoor	Indoor	Outdoor
Unrefrigerated Warehouse	59	2	59	2
General Office Building	2	0	2	0
Parking lot	0	0	0	0
Total Operational Water	61	2	61	2

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 (5.12 Operational Water and Wastewater Consumption).

Electricity/Natural Gas Energy

	Mitigated Project Annual Energy	Riverside County Annual Energy ³	Percentage Increase
Electricity (kWh/yr)	0	17,781,000,000	0.0000%
Electricity (GWh/yr)	0.0000	17,781	0.0000%
Natural Gas (kBTU/yr)	5,153,975	43,105,239,200	0.0120%
Natural Gas (therms/yr)	51,540	431,052,392	0.0120%

Land Use	Electricity ¹ (kWh/yr)		Natural Gas ² (kBTU/yr)	
	Unmitigated	Mitigated	Unmitigated	Mitigated
Unrefrigerated Warehouse	1,169,264	0	4,850,522	4,850,522
General Office Building	191,875	0	303,453	303,453
Parking	208,430	0	0	0
Total Energy	1,569,569	0	5,153,975	5,153,975

Notes:

¹ Electricity use per CalEEMod (5.11 Operational energy Consumption).

² Natural Gas use per CalEEMod (5.11 Operational energy Consumption).

³ County total energy values from California Energy Commission energy reports available through ecdms.energy.ca.gov. (Year 2021)

Menifee Compass (Site 2)

Construction Fuel Consumption

On-Site Diesel ¹ (off-road construction Equipment)	MTCO ₂ e	Gallons of Fuel ⁴	County Fuel in 2024 (Start of Construction)	Percent
Demolition	0	0		
Site Preparation/Grading	112	11,034		
Building Construction	104	10,246		
Paving	9	887		
Architectural Coating	2	179		
Total	227	22,347	134,914,259	0.0166%

Off-Site Diesel ¹ (on-road construction trips)	MTCO ₂ e	Gallons of Fuel ⁴	County Fuel in 2024 (Start of Construction)	Percent
Demolition	0	0		
Site Preparation/Grading	0	0		
Building Construction	20	1,970		
Paving	0	0		
Architectural Coating	0	0		
Total	20	1,970	134,914,259	0.0015%

Off-Site Gasoline ²	MTCO ₂ e	Gallons of Fuel ⁴	County Fuel in 2024 (Start of Construction)	Percent
Demolition	0	0		
Site Preparation/Grading	6	681		
Building Construction	21	2,384		
Paving	2	227		
Architectural Coating	1	114		
Total	30	3,405	528,333,714	0.0006%

Total Diesel Fuel		24,317	134,914,259	0.0180%
Total Gasoline Fuel		3,405	528,333,714	0.0006%
Total Construction Fuel	277	27,722		

Construction Phase ³	Demolition			Site Preparation			Grading		
	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)
2024	0	0	0	72	0	3	40	0	3
Total	0	0	0	72	0	3	40	0	3

Construction Phase ³	Infrastructure + Building Construction			Paving			Architectural Coating		
	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)
2024	104	20	21	9	0	2	0	0	0
2025	0	0	0	0	0	0	2	0	1
Total	104	20	21	9	0	2	2	0	1

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.

Construction Water Energy

Daily Soil Disturbance ¹	4	acres
Days of Soil Disturbance ²	45	days
Water Concentration ³	3,020	gallons/acre
Water Energy Intensity ⁴	11,110	kWh/MG
Total Construction Water	0.48	million gallons
Construction Water Energy	5,284	kWh
	0.0053	GWh
Riverside County Annual Electricity	17,781	GWh
Percentage Increase	0.00003%	

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 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

Vehicle Type	Percent	Annual VMT ¹	MPG ²	Annual Fuel (Gallons)	Fuel Type	Riverside County Fuel Consumption in 2025 (Operational Year) Gallons ³	RS Percent
Passenger Cars (Gasoline)	0.10	1,019,495	21.6	47,199	Gas	518,577,830	0.0091%
Light/Medium Trucks	0.40	193,890	17.2	11,273	Diesel	135,408,190	0.0083%
Heavy Trucks/Other	0.60	290,834	6.1	47,678	Diesel	135,408,190	0.0352%
Trucks Total		484,724		58,950		135,408,190	0.0435%
Total Annual VMT		1,504,219					

Total

Notes:

¹ Total annual operational VMT based on mitigated annual VMT from CalEEMod (5.9 Operational Mobile Sources).

² Average fuel economy derived from Department of Transportation.

³ Total annual county fuel per EMFAC 2017 model of projected operational fuel usage.

Operational Water Energy

Mitigated Indoor	20.0	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	271,530	kWh
Operational Water Energy	0.2715	GWh
Riverside County Annual Electricity	17,781	GWh
Percentage Increase	0.0015%	

Land Use ³	Unmitigated (MG)		Mitigated (MG)	
	Indoor	Outdoor	Indoor	Outdoor
Unrefrigerated Warehouse	18	1	18	1
General Office Building	2	0	2	0
Parking	0	0	0	0
Total Operational Water	20	1	20	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 (5.12 Operational Water and Wastewater Consumption).

Electricity/Natural Gas Energy

	Mitigated Project Annual Energy	Riverside County Annual Energy ³	Percentage Increase
Electricity (kWh/yr)	0	17,781,000,000	0.0000%
Electricity (GWh/yr)	0.0000	17,781	0.0000%
Natural Gas (kBTU/yr)	1,735,531	43,105,239,200	0.0040%
Natural Gas (therms/yr)	17,355	431,052,392	0.0040%

Land Use	Electricity ¹ (kWh/yr)		Natural Gas ² (kBTU/yr)	
	Unmitigated	Mitigated	Unmitigated	Mitigated
Unrefrigerated Warehouse	355,191	0	1,473,458	1,473,458
General Office Building	165,710	0	262,073	262,073
Parking	74,820	0	0	0
Total Energy	595,721	0	1,735,531	1,735,531

Notes:

¹ Electricity use per CalEEMod (5.11 Operational energy Consumption).

² Natural Gas use per CalEEMod (5.11 Operational energy Consumption).

³ County total energy values from California Energy Commission energy reports available through ecdms.energy.ca.gov. (Year 2021)

Menifee Compass (Site 3)

Construction Fuel Consumption

On-Site Diesel ¹ (off-road construction Equipment)	MTCO ₂ e	Gallons of Fuel ⁴	County Fuel in 2024 (Start of Construction)	Percent
Demolition	0	0		
Site Preparation/Grading	112	11,034		
Building Construction	104	10,246		
Paving	10	985		
Architectural Coating	2	179		
Total	228	22,445	134,914,259	0.0166%

Off-Site Diesel ¹ (on-road construction trips)	MTCO ₂ e	Gallons of Fuel ⁴	County Fuel in 2024 (Start of Construction)	Percent
Demolition	0	0		
Site Preparation/Grading	0	0		
Building Construction	32	3,153		
Paving	0	0		
Architectural Coating	0	0		
Total	32	3,153	134,914,259	0.0023%

Off-Site Gasoline ²	MTCO ₂ e	Gallons of Fuel ⁴	County Fuel in 2024 (Start of Construction)	Percent
Demolition	0	0		
Site Preparation/Grading	6	681		
Building Construction	34	3,859		
Paving	1	114		
Architectural Coating	2	227		
Total	43	4,881	528,333,714	0.0009%

Total Diesel Fuel		25,598	134,914,259	0.0190%
Total Gasoline Fuel		4,881	528,333,714	0.0009%
Total Construction Fuel	303	30,479		

Construction Phase ³	Demolition			Site Preparation			Grading		
	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)
2024	0	0	0	72	0	3	40	0	3
Total	0	0	0	72	0	3	40	0	3

Construction Phase ³	Infrastructure + Building Construction			Paving			Architectural Coating		
	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gasoline (Worker)
2024	104	32	34	10	0	1	0	0	0
2025	0	0	0	0	0	0	2	0	2
Total	104	32	34	10	0	1	2	0	2

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.

Construction Water Energy

Daily Soil Disturbance ¹	4	acres
Days of Soil Disturbance ²	45	days
Water Concentration ³	3,020	gallons/acre
Water Energy Intensity ⁴	11,110	kWh/MG
Total Construction Water	0.48	million gallons
Construction Water Energy	5,284	kWh
	0.0053	GWh
Riverside County Annual Electricity	17,781	GWh
Percentage Increase	0.00003%	

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 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

Vehicle Type	Percent	Annual VMT ¹	MPG ²	Annual Fuel (Gallons)	Fuel Type	Riverside County Fuel Consumption in 2025 (Operational Year) Gallons ³	RS Percent
Passenger Cars (Gasoline)	0.10	964,537	21.6	44,654	Gas	518,577,830	0.0086%
Light/Medium Trucks	0.40	239,747	17.2	13,939	Diesel	135,408,190	0.0103%
Heavy Trucks/Other	0.60	359,621	6.1	58,954	Diesel	135,408,190	0.0435%
Trucks Total		599,368		72,893		135,408,190	0.0538%
Total Annual VMT		1,563,905					

Total

Notes:

¹ Total annual operational VMT based on mitigated annual VMT from CalEEMod (5.9 Operational Mobile Sources).

² Average fuel economy derived from Department of Transportation.

³ Total annual county fuel per EMFAC 2017 model of projected operational fuel usage.

Operational Water Energy

Mitigated Indoor	32.0	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	427,782	kWh
Operational Water Energy	0.4278	GWh
Riverside County Annual Electricity	17,781	GWh
Percentage Increase	0.0024%	

Land Use ³	Unmitigated (MG)		Mitigated (MG)	
	Indoor	Outdoor	Indoor	Outdoor
Unrefrigerated Warehouse	23	1	23	1
Refrigerated Warehouse	8	0	8	0
General Office Building	1	0	1	0
Parking	0	0	0	0
Total Operational Water	32	1	32	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 (5.12 Operational Water and Wastewater Consumption).

Electricity/Natural Gas Energy

	Mitigated Project Annual Energy	Riverside County Annual Energy ³	Percentage Increase
Electricity (kWh/yr)	0	17,781,000,000	0.0000%
Electricity (GWh/yr)	0.0000	17,781	0.0000%
Natural Gas (kBTU/yr)	2,926,684	43,105,239,200	0.0068%
Natural Gas (therms/yr)	29,267	431,052,392	0.0068%

Land Use	Electricity ¹ (kWh/yr)		Natural Gas ² (kBTU/yr)	
	Unmitigated	Mitigated	Unmitigated	Mitigated
Unrefrigerated Warehouse	455,274	0	1,888,637	1,888,637
Refrigerated Warehouse	721,127	0	872,527	872,527
General Office Building	104,659	0	165,520	165,520
Parking	124,873	0	0	0
Total Energy	1,405,933	0	2,926,684	2,926,684

Notes:

¹ Electricity use per CalEEMod (5.11 Operational energy Consumption).

² Natural Gas use per CalEEMod (5.11 Operational energy Consumption).

³ County total energy values from California Energy Commission energy reports available through ecdms.energy.ca.gov. (Year 2021)

Compass Electricity Emissions

Electricity Consumption and Solar PV Production Estimates

63 kW(dc) PV system
105,210 kWh/year solar generation
3,571,223 kWh/year total building electricity 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 ₂ e/yr
Site 1	234.92	1,569,569	1,569.57	249.62
Site 2	87.77	595,721	595.72	94.74
Site 3	138.55	1,405,932	1,405.93	223.60
		<i>Total Unmitigated</i>	<i>3,571.22</i>	<i>567.96</i>
Solar Electricity Generation		-105,210	-105.21	-16.73
		<i>Total Mitigated</i>	<i>3,466.01</i>	<i>551.23</i>

SCE Electricity Intensity Factor

CO₂e (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.

	Project KSF	Forklifts	Hostlers
Site 1	235	5	1
Site 2	88	2	0
Site 3	139	3	1

Statistical Measure	Number of Pallet Jacks/Forklifts at Facility per Thousand Square Feet of
Minimum	0.02
Maximum	0.4
Average	0.12

Source: *SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results* , June 2014, Table 9 Pallet Jack/Forklift Usage, page 9.
<http://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/business-survey-summary.pdf>

Hostlers

3.6 hostlers per million sf

Electric Equipment Emissions

Equipment	Number of Equipment¹	Hours per Day¹	Days per Year¹	Equipment Size² (hp)	Equipment Size (kW)	Load Factor²	SCE electricity emission factor³ (MT CO₂e/MWh)	Emissions (MT CO₂e/year)
Forklift	10	12	365	82	61.1	0.20	0.178	95
Yard Truck	2	6	365	190	141.7	0.44	0.178	49

Notes:

¹ Project-specific data.

² Equipment size and load factors based on CalEEMod v2020 Appendix D, Table 3.3 and CalEEMod v2022 Appendix G, Table G-12.

³ CO₂e intensity factor for SCE accounts for the projected RPS improvements consistent with SB 100.