

Appendix F

Energy Modeling Calculations

Energy Calculations Summary GV SOI Amendment

Operational Fuel Use Summary (Southern SOI Amendment)

Vehicle Class	Diesel Gallons	Gasoline Gallons
Passenger	4,487	559,914
Truck	204,833	487,919
Bus	10,471	8,364
Other	889	2,513
Total	220,681	1,058,710

1. Fleet mix calculated from CalEEMod default values.
2. Gallons per mile calculated from EMFAC 2017.
3. Annual VMT obtained from CalEEMod output file.

Operational Energy Consumption Summary (Southern SOI Amendment)

Land Use	Electricity (kWW/year)	Natural Gas (kBTU/year)	Electricity (MWW/year)
General Office Building			-
General Light Industry			-
Manufacturing	-	-	-
City Park	-		-
Apartments Mid Rise			-
Condo/Townhouse			-
Single Family Housing			-
Total	-	-	-

1. Electricity and natural gas consumption derived from CalEEMod

Southern SOI Amendment Operational Fuel Use

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: County

Region: Nevada

Calendar Year: 2040

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	Class	MdYr	Speed	Fuel	Population	VMT (mi/day)	Trips	Fuel_Consumption (1000 gal/day)
NEVADA	2040	HHDT	Truck	Aggregated	Aggregated	GAS	0.682346	69.81192019	13.6523701	0.012763177
NEVADA	2040	HHDT	Truck	Aggregated	Aggregated	DSL	2005.568	271828.9071	21503.65275	30.15956157
NEVADA	2040	LDA	Passenger	Aggregated	Aggregated	GAS	49312.67	1827665.349	228406.2881	41.81393983
NEVADA	2040	LDA	Passenger	Aggregated	Aggregated	DSL	624.31	22951.53624	2884.583951	0.338974689
NEVADA	2040	LDT1	Truck	Aggregated	Aggregated	GAS	6411.336	210908.2874	28323.83206	5.823775586
NEVADA	2040	LDT1	Truck	Aggregated	Aggregated	DSL	1.033418	31.97249631	4.463925749	0.000955508
NEVADA	2040	LDT2	Truck	Aggregated	Aggregated	GAS	23776.74	762631.0478	103818.0472	21.49109188
NEVADA	2040	LDT2	Truck	Aggregated	Aggregated	DSL	226.3631	7702.384098	1016.832253	0.157063832
NEVADA	2040	LHDT1	Truck	Aggregated	Aggregated	GAS	1641.591	50890.65877	24457.25973	5.18495556
NEVADA	2040	LHDT1	Truck	Aggregated	Aggregated	DSL	1182.38	36656.81135	14872.8513	1.727550548
NEVADA	2040	LHDT2	Truck	Aggregated	Aggregated	GAS	129.6532	4607.27445	1931.640125	0.521654456
NEVADA	2040	LHDT2	Truck	Aggregated	Aggregated	DSL	483.4625	14646.05953	6081.350309	0.783609659
NEVADA	2040	MCY	Passenger	Aggregated	Aggregated	GAS	3639.633	15952.97284	7279.266597	0.445072934
NEVADA	2040	MDV	Truck	Aggregated	Aggregated	GAS	14869.74	459351.1816	64371.46363	15.5922194
NEVADA	2040	MDV	Truck	Aggregated	Aggregated	DSL	531.0497	16957.68768	2344.637637	0.454116459
NEVADA	2040	MH	Other	Aggregated	Aggregated	GAS	167.923	1588.191782	16.7990166	0.276661479
NEVADA	2040	MH	Other	Aggregated	Aggregated	DSL	146.7911	1049.36531	14.6791096	0.097869331
NEVADA	2040	MHDT	Truck	Aggregated	Aggregated	GAS	179.8862	7728.526543	3599.163203	1.320484111
NEVADA	2040	MHDT	Truck	Aggregated	Aggregated	DSL	791.1275	43377.00518	6560.662619	3.796552411
NEVADA	2040	OBUS	Bus	Aggregated	Aggregated	GAS	28.38101	1084.832474	567.847149	0.186785446
NEVADA	2040	OBUS	Bus	Aggregated	Aggregated	DSL	66.54306	4013.178603	606.1813365	0.391138174
NEVADA	2040	SBUS	Bus	Aggregated	Aggregated	GAS	14.54014	652.3495149	58.16054536	0.057721569
NEVADA	2040	SBUS	Bus	Aggregated	Aggregated	DSL	58.20812	1860.009509	671.7136753	0.172032491
NEVADA	2040	UBUS	Bus	Aggregated	Aggregated	GAS	7.451497	687.0313866	29.8059865	0.129693855
NEVADA	2040	UBUS	Bus	Aggregated	Aggregated	DSL	9.553336	835.0767566	38.21334598	0.071960361

Project VMT (mi/yr) **42,320,627** From CalEEMod output

Project Mobile Emissions (MT/yr) **16,095** From CalEEMod output

	Gas (gal)	Diesel (gal)
Passenger	559,914	4,487
Truck	487,919	204,833
Bus	8,364	10,471
Other	2,513	889
Total	1,058,710	220,681

Fuel (gal/day)	mi/gal	CO2_RUNEX (tons/day)	CO2 (lb/day)	% of vehicle class EMFAC	% vehicle class CalEEMod	% vehicle class project	VMT by project vehicle class (mi/yr)	Gallons of fuel
12.76317727	5.469791629	0.120380536	241	0.000256757	0.026318	6.75733E-06	285.9745583	52.28253244
30159.56157	9.013025818	307.3217354	614,643	0.999743243	0.026318	0.026311243	1113508.287	123544.3356
41813.93983	43.70947478	385.9685753	771,937	0.9875979	0.578893	0.571713511	24195274.25	553547.5859
338.9746885	67.70870222	3.803446616	7,607	0.0124021	0.578893	0.007179489	303840.4783	4487.465693
5823.775586	36.21504371	53.6274458	107,255	0.999848429	0.033999	0.033993847	1438640.908	39724.95295
0.955508412	33.46124002	0.010721229	21	0.000151571	0.033999	5.15327E-06	218.0897757	6.517683613
21491.09188	35.48591445	197.5810415	395,162	0.990001234	0.21284	0.210711863	8917458.139	251295.712
157.063832	49.03983304	1.76232598	3,525	0.009998766	0.21284	0.002128137	90064.11156	1836.550126
5184.95556	9.815061707	48.47213259	96,944	0.581292169	0.010628	0.006177973	261455.6981	26638.21236
1727.550548	21.21895153	19.22676164	38,454	0.418707831	0.010628	0.004450027	188327.9256	8875.458589
521.6544561	8.832042736	4.885416722	9,771	0.239297488	0.004325	0.001034962	43800.22528	4959.240641
783.6096586	18.69050409	8.688234149	17,376	0.760702512	0.004325	0.003290038	139236.4865	7449.584336
445.0729337	35.84350256	3.705739304	7,411	1	0.005392	0.005392	228192.8208	6366.365016
15592.2194	29.46028207	143.1588314	286,318	0.964397708	0.104491	0.100770881	4264686.861	144760.5577
454.1164591	37.34215604	5.095388441	10,191	0.035602292	0.104491	0.003720119	157437.7747	4216.086894
276.6614795	5.740559855	2.62065235	5,241	0.602144987	0.000566	0.000340814	14423.46483	2512.553687
97.86933107	10.72210568	1.098137379	2,196	0.397855013	0.000566	0.000225186	9530.010051	888.8188884
1320.484111	5.852797834	12.29524544	24,590	0.15122681	0.018736	0.002833386	119910.6515	20487.74875
3796.552411	11.42536715	41.9833821	83,967	0.84877319	0.018736	0.015902614	673008.616	58904.76931
186.7854462	5.80790686	1.744496374	3,489	0.212795237	0.001852	0.000394097	16678.42276	2871.675315
391.1381736	10.26025807	4.281163896	8,562	0.787204763	0.001852	0.001457903	61699.37844	6013.433386
57.72156947	11.30165934	0.509657644	1,019	0.259656167	0.000598	0.000155274	6571.309458	581.4464282
172.0324908	10.81196639	1.747128586	3,494	0.740343833	0.000598	0.000442726	18736.42549	1732.934122
129.6938554	5.297331817	1.226264074	2,453	0.451368314	0.001362	0.000614764	26017.18287	4911.374966
71.96036118	11.60467711	0.807427225	1,615	0.548631686	0.001362	0.000747236	31623.51111	2725.066005

Gasoline Sum	1,058,710
Diesel Sum	220,681

Previously Approved Project Operational Fuel Use

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: County

Region: Nevada

Calendar Year: 2040

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	Class	MdYr	Speed	Fuel	Population	VMT (mi/d	Trips	Fuel_Consumption (1000 gal/day)	Fuel (gal/d mi/gal)	CO2_RUNEX (tons/day)	
NEVADA	2040	HHDT	Truck	Aggregated	Aggregated	GAS	0.682346	69.81192	13.65237	0.012763	12.76318	5.469792	0.120380536
NEVADA	2040	HHDT	Truck	Aggregated	Aggregated	DSL	2005.568	271828.9	21503.65	30.15956	30159.56	9.013026	307.3217354
NEVADA	2040	LDA	Passenger	Aggregated	Aggregated	GAS	49312.67	1827665	228406.3	41.81394	41813.94	43.70947	385.9685753
NEVADA	2040	LDA	Passenger	Aggregated	Aggregated	DSL	624.31	22951.54	2884.584	0.338975	338.9747	67.7087	3.803446616
NEVADA	2040	LDT1	Truck	Aggregated	Aggregated	GAS	6411.336	210908.3	28323.83	5.823776	5823.776	36.21504	53.6274458
NEVADA	2040	LDT1	Truck	Aggregated	Aggregated	DSL	1.033418	31.9725	4.463926	0.000956	0.955508	33.46124	0.010721229
NEVADA	2040	LDT2	Truck	Aggregated	Aggregated	GAS	23776.74	762631	103818	21.49109	21491.09	35.48591	197.5810415
NEVADA	2040	LDT2	Truck	Aggregated	Aggregated	DSL	226.3631	7702.384	1016.832	0.157064	157.0638	49.03983	1.76232598
NEVADA	2040	LHDT1	Truck	Aggregated	Aggregated	GAS	1641.591	50890.66	24457.26	5.184956	5184.956	9.815062	48.47213259
NEVADA	2040	LHDT1	Truck	Aggregated	Aggregated	DSL	1182.38	36656.81	14872.85	1.727551	1727.551	21.21895	19.22676164
NEVADA	2040	LHDT2	Truck	Aggregated	Aggregated	GAS	129.6532	4607.274	1931.64	0.521654	521.6545	8.832043	4.885416722
NEVADA	2040	LHDT2	Truck	Aggregated	Aggregated	DSL	483.4625	14646.06	6081.35	0.78361	783.6097	18.6905	8.688234149
NEVADA	2040	MCY	Passenger	Aggregated	Aggregated	GAS	3639.633	15952.97	7279.267	0.445073	445.0729	35.8435	3.705739304
NEVADA	2040	MDV	Truck	Aggregated	Aggregated	GAS	14869.74	459351.2	64371.46	15.59222	15592.22	29.46028	143.1588314
NEVADA	2040	MDV	Truck	Aggregated	Aggregated	DSL	531.0497	16957.69	2344.638	0.454116	454.1165	37.34216	5.095388441
NEVADA	2040	MH	Other	Aggregated	Aggregated	GAS	167.923	1588.192	16.79902	0.276661	276.6615	5.74056	2.62065235
NEVADA	2040	MH	Other	Aggregated	Aggregated	DSL	146.7911	1049.365	14.67911	0.097869	97.86933	10.72211	1.098137379
NEVADA	2040	MHDT	Truck	Aggregated	Aggregated	GAS	179.8862	7728.527	3599.163	1.320484	1320.484	5.852798	12.29524544
NEVADA	2040	MHDT	Truck	Aggregated	Aggregated	DSL	791.1275	43377.01	6560.663	3.796552	3796.552	11.42537	41.9833821
NEVADA	2040	OBUS	Bus	Aggregated	Aggregated	GAS	28.38101	1084.832	567.8471	0.186785	186.7854	5.807907	1.744496374
NEVADA	2040	OBUS	Bus	Aggregated	Aggregated	DSL	66.54306	4013.179	606.1813	0.391138	391.1382	10.26026	4.281163896
NEVADA	2040	SBUS	Bus	Aggregated	Aggregated	GAS	14.54014	652.3495	58.16055	0.057722	57.72157	11.30166	0.509657644
NEVADA	2040	SBUS	Bus	Aggregated	Aggregated	DSL	58.20812	1860.01	671.7137	0.172032	172.0325	10.81197	1.747128586
NEVADA	2040	UBUS	Bus	Aggregated	Aggregated	GAS	7.451497	687.0314	29.80599	0.129694	129.6939	5.297332	1.226264074
NEVADA	2040	UBUS	Bus	Aggregated	Aggregated	DSL	9.553336	835.0768	38.21335	0.07196	71.96036	11.60468	0.807427225

Project VMT (mi/yr)	40,658,754	From CalEEMod output
Project Mobile Emissions (MT/yr)	15,630	From CalEEMod output
	Gas (gal)	Diesel (gal)
Passenger	537,927	4,311
Truck	468,759	196,790
Bus	8,036	10,060
Other	2,414	854
Total	1,017,136	212,015

CO2 (lb/day)	% of vehicle class EMFAC	% vehicle class CalEEMod	% vehicle class project	VMT by project vehicle class (mi/yr)	Gallons of fuel
241	0.000257	0.026318	6.76E-06	274.7447295	50.22946907
614,643	0.999743	0.026318	0.026311	1069782.343	118692.919
771,937	0.987598	0.578893	0.571714	23245159	531810.5311
7,607	0.012402	0.578893	0.007179	291909.0793	4311.249068
107,255	0.999848	0.033999	0.033994	1382147.452	38165.00851
21	0.000152	0.033999	5.15E-06	209.5256892	6.261743113
395,162	0.990001	0.21284	0.210712	8567281.784	241427.674
3,525	0.009999	0.21284	0.002128	86527.41737	1764.431321
96,944	0.581292	0.010628	0.006178	251188.6913	25592.16629
38,454	0.418708	0.010628	0.00445	180932.5462	8526.931499
9,771	0.239297	0.004325	0.001035	42080.25048	4764.49806
17,376	0.760703	0.004325	0.00329	133768.8606	7157.049373
7,411	1	0.005392	0.005392	219232.0016	6116.36659
286,318	0.964398	0.104491	0.100771	4097218.455	139076.009
10,191	0.035602	0.104491	0.00372	151255.4091	4050.526942
5,241	0.602145	0.000566	0.000341	13857.07514	2413.889149
2,196	0.397855	0.000566	0.000225	9155.779622	853.9161892
24,590	0.151227	0.018736	0.002833	115201.9246	19683.22295
83,967	0.848773	0.018736	0.015903	646580.4903	56591.65978
3,489	0.212795	0.001852	0.000394	16023.48397	2758.908563
8,562	0.787205	0.001852	0.001458	59276.52844	5777.294102
1,019	0.259656	0.000598	0.000155	6313.263145	558.6138241
3,494	0.740344	0.000598	0.000443	18000.67175	1664.884175
2,453	0.451368	0.001362	0.000615	24995.52377	4718.512004
1,615	0.548632	0.001362	0.000747	30381.69918	2618.056399

Gasoline Sum	1,017,136
Diesel Sum	212,015

Energy Calculations Summary

Construction Fuel Usage Summary

	Diesel	Gasoline	Diesel	Diesel
Construction Phase	Off-road Equipment (gallons)	On-road (gallons)	On-road (gallons)	Total
2022	40,204	3,267	245	40,449
2023	30,065	13,095	253,810	283,875
2024	30,296	12,806	252,421	282,718
2025	30,181	12,371	247,795	277,976
2026	14,339	5,710	115,869	130,208
TOTAL	145,085	47,249	870,140	1,015,225
Total Gasoline	47,249	gallons		
Total Diesel	1,015,225	gallons		

2022 Construction Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Diesel Fuel Usage
Demolition	Excavators	3	8	158	0.38	63	4,539
Demolition	Concrete Industrial Saws	1	8	81	0.73	63	1,490
Demolition	Rubber Tired Dozers	2	8	247	0.40	63	4,980
Site Prep	Tractors/Loaders/Backhoes	4	8	97	0.37	63	3,618
Site Prep	Rubber Tired Dozers	3	8	247	0.40	63	7,469
Grading	Excavators	2	8	158	0.38	38	1,825
Grading	Rubber Tired Dozers	1	8	247	0.40	38	1,502
Grading	Graders	1	8	187	0.41	38	1,165
Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	38	1,091
Grading	Scrapers	2	8	367	0.48	38	5,355
Building Construction	Cranes	1	7	231	0.29	62	1,454
Building Construction	Forklifts	3	8	89	0.20	62	1,324
Building Construction	Generator Sets	1	8	84	0.74	62	1,542
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	62	2,336
Building Construction	Welders	1	8	46	0.45	62	513
TOTAL							40,204

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Total Hauling Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Haul Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	Total gallons of gasoline	Total gallons of diesel
Demolition	100	0	91	63	6300	0	91.00	15.00	9.00	20.00	94500	0	1,820.00	3,267	245
Site Preparation	100	0		38	3800	0	-	15.00	9.00	20.00	57000	0	-	1,971	0
Grading	100	0		97	9700	0	-	15.00	9.00	20.00	145500	0	-	5,031	0
Building Construction	100	849		62	6200	52638	-	15.00	9.00	20.00	93000	473742	-	3,216	63,832
TOTAL													3,267	245	

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Demolition

Construction Start Date 1/3/2022
 Construction End Date 3/30/2022
 Total Work Days 63

Site Preparation

Construction Start Date 3/31/2022
 Construction End Date 5/23/2022
 Total Work Days 38

Grading

Construction Start Date 5/24/2022
 Construction End Date 10/5/2022
 Total Work Days 97

Building Construction

Construction Start Date 10/6/2022
 Construction End Date 12/31/2022
 Total Work Days 62

2023 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Diesel Fuel Usage
Building Construction	Cranes	1	7	231	0.29	260	6,096
Building Construction	Forklifts	3	8	89	0.20	260	5,554
Building Construction	Generator Sets	1	8	84	0.74	260	6,465
Building Construction	Tractors/Loaders /Backhoes	3	7	97	0.37	260	9,798
Building Construction	Welders	1	8	46	0.45	260	2,153
TOTAL							30,065

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Total Hauling Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Haul Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	Total gallons of gasoline	Total gallons of diesel
Building Construction	100	849	0	260	26000	220740	-	15.00	9.00	20.00	390000	1986660	-	13,095	253,810
TOTAL													13,095	253,810	

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Number of Days Adjusted as demolition would occur over 2 years, but not at same degree year round

Building Construction

Construction Start Date 1/1/2023

Construction End Date 12/31/2023

Total Work Days 260

2024 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Diesel Fuel Usage
Building Construction	Cranes	1	7	231	0.29	262	6,143
Building Construction	Forklifts	3	8	89	0.20	262	5,596
Building Construction	Generator Sets	1	8	84	0.74	262	6,514
Building Construction	Tractors/Loaders/Back hoes	3	7	97	0.37	262	9,873
Building Construction	Welders	1	8	46	0.45	262	2,169
TOTAL							30,296

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Total Hauling Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Haul Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	Total gallons of gasoline	Total gallons of diesel
Building Construction	100	849	0	262	26200	222438	-	15.00	9.00	20.00	393000	2001942	-	12,806	252,421
TOTAL													12,806	252,421	

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Number of Days Adjusted as demolition would occur over 2 years, but not at same degree year round

Building Construction

Construction Sta	1/1/2024
Construction Enc	12/31/2024
Total Work Days	262

2025 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Diesel Fuel Usage
Building Construction	Cranes	1	7	231	0.29	261	6,120
Building Construction	Forklifts	3	8	89	0.20	261	5,575
Building Construction	Generator Sets	1	8	84	0.74	261	6,490
Building Construction	Tractors/Loaders/Balckhoes	3	7	97	0.37	261	9,836
Building Construction	Welders	1	8	46	0.45	261	2,161
						TOTAL	30,181

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Total Hauling Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Haul Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	Total gallons of gasoline	Total gallons of diesel
Building Construction	100	849	0	261	26100	221589	-	15.00	9.00	20.00	391500	1994301	-	12,371	247,795
													TOTAL	12,371	247,795

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Number of Days Adjusted as demolition would occur over 2 years, but not at same degree year round

Building Construction

Construction Start Date 1/1/2025
 Construction End Date 12/31/2025
 Total Work Days 261

2025 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Diesel Fuel Usage
Building Construction	Cranes	1	7	231	0.29	124	2,907
Building Construction	Forklifts	3	8	89	0.20	124	2,649
Building Construction	Generator Sets	1	8	84	0.74	124	3,083
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	124	4,673
Building Construction	Welders	1	8	46	0.45	124	1,027
Paving	Pavers	2	8	130	0.42	69	3,014
Paving	Rollers	2	8	80	0.38	69	1,678
Paving	Paving Equipment	2	8	132	0.36	69	2,623
Architectural Coating	Air Compressors	1	6	78	0.48	68	764
TOTAL							14,339

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Total Hauling Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Haul Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	Total gallons of gasoline	Total gallons of diesel
Building Construction	100	849	0	124	12400	105276	-	15.00	9.00	20.00	186000	947484	-	5,710	115,869
Paving	280	0	0	69	19320	0	-	15.00	9.00	20.00	289800	0	-	8,897	0
Architectural Coating	280	0	0	68	19040	0	-	15.00	9.00	20.00	285600	0	-	8,768	0
TOTAL													5,710	115,869	

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Number of Days Adjusted as demolition would occur over 2 years, but not at same degree year round

Building Construction

Construction Start Date 1/1/2026

Construction End Date 6/23/2026

Total Work Days 124

Paving

Construction Start Date 6/24/2026

Construction End Date 9/28/2026

Total Work Days 69

Architectural Coating

Construction Start Date 9/29/2026

Construction End Date 12/31/2026

Total Work Days 68

EMFAC MPG

EMFAC2017 (v1.0.2) Emissions Inventory

Region Type: County

Region: Yolo

Year Range: 2022-2026

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Yolo	2022	LDA	Aggregated	Aggregated	GAS	87261.733	3727942.447	410367.3055	116.9643105	0.00	31.87	28.92	7.42
Yolo	2022	LDT1	Aggregated	Aggregated	GAS	10855.353	368733.0532	49254.24735	13.70587979	0.00	26.90		
Yolo	2022	LDT2	Aggregated	Aggregated	GAS	33709.96	1200981.786	156383.4611	47.96519418	0.00	25.04		
Yolo	2022	T7 tractor	Aggregated	Aggregated	DSL	298.19799	40605.60482	3787.114431	0.00	5.471196076	7.42		
Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).													
Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per	Diesel miles per
Yolo	2023	LDA	Aggregated	Aggregated	GAS	89564.795	3805359.029	421637.5506	115.9716328	0.00	32.81	29.78	7.83
Yolo	2023	LDT1	Aggregated	Aggregated	GAS	11036.224	373423.138	50168.40773	13.52114934	0.00	27.62		
Yolo	2023	LDT2	Aggregated	Aggregated	GAS	34446.05	1215648.995	159759.0926	46.95422164	0.00	25.89		
Yolo	2023	T7 tractor	Aggregated	Aggregated	DSL	300.78394	41347.31117	3819.955993	0.00	5.282411654	7.83		
Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).													
Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per	Diesel miles per
Yolo	2024	LDA	Aggregated	Aggregated	GAS	91855.678	3877240.927	432717.1082	114.7141784	0.00	33.80	30.69	7.93
Yolo	2024	LDT1	Aggregated	Aggregated	GAS	11227.244	378094.7432	51114.29776	13.32626286	0.00	28.37		
Yolo	2024	LDT2	Aggregated	Aggregated	GAS	35182.505	1229956.565	163116.5744	45.91895027	0.00	26.79		
Yolo	2024	T7 tractor	Aggregated	Aggregated	DSL	318.79308	42135.23796	4048.672146	0.00	5.312753538	7.93		
Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).													
Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per	Diesel miles per
Yolo	2025	LDA	Aggregated	Aggregated	GAS	94150.789	3947087.534	443669.6131	113.2899809	0.00	34.84	31.65	8.05
Yolo	2025	LDT1	Aggregated	Aggregated	GAS	11424.847	382901.0307	52075.61908	13.12450374	0.00	29.17		
Yolo	2025	LDT2	Aggregated	Aggregated	GAS	35908.802	1244391.169	166404.351	44.87109141	0.00	27.73		
Yolo	2025	T7 tractor	Aggregated	Aggregated	DSL	335.84683	42828.20452	4265.254692	0.00	5.321472505	8.05		
Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).													
Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per	Diesel miles per
Yolo	2026	LDA	Aggregated	Aggregated	GAS	96479.387	4006593.877	454695.9661	111.7994552	0.00	35.84	32.57	8.18
Yolo	2026	LDT1	Aggregated	Aggregated	GAS	11626.016	386908.9945	53051.00711	12.91737636	0.00	29.95		
Yolo	2026	LDT2	Aggregated	Aggregated	GAS	36643.821	1256574.052	169729.5477	43.8396915	0.00	28.66		
Yolo	2026	T7 tractor	Aggregated	Aggregated	DSL	351.26672	43516.07828	4461.087304	0.00	5.321635696	8.18		
Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).													