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# **Appendix E**

## Energy Assessment Calculations



## Construction

Source	Percent	Total MTCO2	Gallons	
			Diesel	Gasoline
<b>2024</b>				
Off-road	35.9%	306	30,017	
Electricity	0.0%	0		
Worker	11.0%	94		10,695
Vendor	23.0%	196	19,231	
Hauling	30.1%	257	25,167	
Onsite Truck	0.0%	0	0	
<b>Total</b>	<b>100.0%</b>	<b>854</b>	<b>74,414</b>	<b>10,695</b>
<b>2025</b>				
Off-road	33.5%	841	82,335	
Electricity	0.0%	0		
Worker	19.0%	477		54,303
Vendor	44.5%	1,117	109,370	
Hauling	3.0%	75	7,373	
Onsite Truck	0.0%	0	0	
<b>Total</b>	<b>100.0%</b>	<b>2,509</b>	<b>199,078</b>	<b>54,303</b>
<b>Total Construction Period</b>				
Off-road	34.1%	1,147	112,351	0
Electricity	0.0%	0	0	0
Worker	17.0%	571	0	64,998
Vendor	39.0%	1,313	128,601	0
Hauling	9.9%	332	32,540	0
Onsite Truck	0.0%	0	0	0
<b>Total</b>	<b>100.0%</b>	<b>3,363</b>	<b>273,492</b>	<b>64,998</b>

338,490

## Operation

Source	Percent	15		
		Total MTCO2	Gallons	
			Diesel	Gasoline
Mobile Exhaust	71.1%	31,722.57	2,020,968	218,755
Landscape Equipment	0.0%	17.85	1,748	
Electricity	6.2%	2,766.24		
Natural Gas Energy	4.2%	1,873.91		
Water and Wastewater	0.0%	17.85		
Solid Waste	0.3%	133.85		
Emergency Generators	0.1%	44.62	4,370	
Offroad Equipment	18.1%	8,075.65	790,955	
<b>Total</b>	<b>100.1%</b>	<b>44,617</b>	<b>2,818,040</b>	<b>218,755</b>
<b>Type</b>	<b>Total</b>	<b>Units</b>		3,036,795
Petroleum	3,036,795	gallons/year		
Electricity	8,694,565	kWh/year		
Electricity-offroad	8,781,645	kWh/year	17,476,210	
Natural Gas	35,384,458	kBTU/year		
				<b>792,703</b>

Total by Vehicle Classification		%
Passenger Vehicles	2,546	69%
Trucks	1,123	31%
Total Trip Generation (Non-PCE)	3,669	

Constants		
Fuel	KgCO <sub>2</sub> /Gallo	1000 Kg in MT
Gasoline	8.78	
Diesel	10.21	

Source: [The Climate Registry 2023](#)

(June 2023)

**Table 2.1 U.S. Default Factors for Calculating CO<sub>2</sub> Emissions from Combustion of Transport Fuels**

Fuel Type	Carbon Content (Per Unit Energy)	Heat Content	Fraction Oxidized	CO <sub>2</sub> Emission Factor (Per Unit Volume)
<b>Fuels Measured in Gallons</b>	<b>kg C / MMBtu</b>	<b>MMBtu / gallon</b>		<b>kg CO<sub>2</sub> / gallon</b>
Gasoline	19.2	0.125	1	8.78
Diesel Fuel	20.2	0.138	1	10.21

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Off-Road Equipment	TOG	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM10E	PM2.5E	PM10D	PM2.5D	BCO <sub>2</sub>	CO <sub>2</sub>	CH <sub>4</sub>
N/A											1,379	0.131

