

Appendix G

AIR QUALITY TABLES

Table A-Construction Emissions

Construction Emissions – Alternatives A¹

Construction Year	Criteria Pollutants					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
	tons per year					
2025	2.03	2.35	2.67	0.01	0.19	0.17
Maximum Year Emissions	2.03	2.35	2.67	0.01	0.19	0.17
<i>De Minimis Level</i>	<i>N/A</i>	<i>100</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>

Notes: N/A = Not Applicable; de minimis levels are not applicable due to attainment status (Refer to **Section 3.4**).

Source: EPA, MOVES, 2023; AP-42, 1995.

See note above regarding MOVES version

Table A-Operational Emissions

Operation Emissions - Alternatives A

Sources	Criteria Pollutants					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
	tons per year					
Stationary	0.06	0.41	0.32	0.09	0.06	0.03
Mobile	7.35	15.17	103.99	0.06	1.73	0.51
Total Emissions	7.42	15.58	104.31	0.15	1.79	0.54
<i>De Minimis Level</i>	<i>N/A</i>	<i>100</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>

Notes: N/A = Not Applicable; de minimis levels are not applicable due to attainment status

(Refer to **Section 3.4**).

Source: EPA, MOVES, 2023; AP-42, 1995.

Table A - Cumulative GHG

Alternative A : PROJECT-RELATED GHG EMISSIONS

Sources	GHGs	CO ₂ e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO ₂ e (MT per year)
Direct				
Amortized Construction	CO ₂ e	1991.79	0.91	90.6
Area	CO ₂ e	889.65		890
			Subtotal	980
Indirect				
Mobile	CO ₂ e	13,260	0.91	12,066
Electricity Usage	CO ₂ e			1964.58
Water Conveyance/ Wastewater Treatment	CO ₂ e			7.58
Solid Waste Disposal	CO ₂ e			77.76
			Subtotal	14,116
Total Project-Related GHG Emissions				15,097

1812.53108

Table B-Construction Emissions

Construction Emissions – Alternative B¹

Construction Year	Criteria Pollutants					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
	tons per year					
2025	0.41	2.15	1.10	0.00	0.17	0.16
Maximum Year Emissions	0.41	2.15	1.10	0.00	0.17	0.16
<i>De Minimis Level</i>	<i>N/A</i>	<i>100</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>

Notes: N/A = Not Applicable; de minimis levels are not applicable due to attainment status (Refer to **Section 3.4**).

Source: EPA, MOVES, 2023; AP-42, 1995.

See note above regarding MOVES version

Table B-Operational Emissions

Operation Emissions - Alternative B

Sources	Criteria Pollutants					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
	tons per year					
Stationary	0.03	0.40	0.24	0.08	0.02	0.01
Mobile	0.79	1.63	11.16	0.01	0.19	0.05
Total Emissions	0.81	2.03	11.40	0.09	0.20	0.07
<i>De Minimis Level</i>	<i>N/A</i>	<i>100</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>

Notes: N/A = Not Applicable; de minimis levels are not applicable due to attainment status

(Refer to **Section 3.4**).

Source: EPA, MOVES, 2023; AP-42, 1995.

Table B - Cumulative GHG

Alternative B: PROJECT-RELATED GHG EMISSIONS

Sources	GHGs	CO ₂ e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO ₂ e (MT per year)
Direct				
Amortized Construction	CO ₂ e	1791.27	0.91	81.5
Area	CO ₂ e	127.28		127
Subtotal				209
Indirect				
Mobile	CO ₂ e	1,422	0.91	1,294
Electricity Usage	CO ₂ e			188.75
Water Conveyance/ Wastewater Treatment	CO ₂ e			1.39
Solid Waste Disposal	CO ₂ e			37.36
Subtotal				1,522
Total Project-Related GHG Emissions				1,731

1630.053526

Table A
Alternative A - Proposed Casino Construction Emissions

Construction Equipment ¹	Horsepower ²	Load Factor ²	Hours in Use ³ (hours/day)	Emission Factors (g/bhp/hr) or g/mile ⁵							Emission (tons/year)						
				CO	VOC	NO _x	SO ₂	PM ₁₀	PM _{2.5} ³	CO ₂	CO	VOC	NO _x	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Year 2025 Site Grading																	
4 Bulldozer	367	0.4	8	0.17	0.03	0.42	0.00	0.03	0.03	536.75	0.03	0.01	0.09	0.00	0.01	0.01	111.08
1 Motor Grader	148	0.41	8	0.09	0.01	0.25	0.00	0.02	0.02	536.79	0.00	0.00	0.01	0.00	0.00	0.00	11.48
2 Excavator	360	0.38	8	0.12	0.02	0.29	0.00	0.02	0.02	536.77	0.01	0.00	0.03	0.00	0.00	0.00	51.76
2 Scraper	423	0.48	8	0.18	0.03	0.45	0.00	0.03	0.03	536.75	0.03	0.00	0.06	0.00	0.00	0.00	76.81
4 Tractor/Loader/Backhoe	84	0.37	8	2.08	0.42	2.33	0.00	0.37	0.36	694.79	0.09	0.02	0.10	0.00	0.02	0.02	30.44
2 Water Truck	420	0.59	8	0.04	0.01	0.14	0.00	0.01	0.01	536.80	0.01	0.00	0.02	0.00	0.00	0.00	93.76
3 Other Construction Equipment	234	0.59	8	0.15	0.04	0.46	0.00	0.03	0.03	536.72	0.02	0.01	0.07	0.00	0.00	0.00	78.34
Employee Trips (miles) ⁴	18,000			3.84	0.26	0.18	0.00	0.02	0.01	333.03	0.08	0.01	0.00	0.00	0.00	0.00	6.61
Vendor Trips	0			4.48	0.40	1.56	0.00	0.12	0.06	1088.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Trips	-			3.35	0.23	3.12	0.00	0.19	0.08	1243.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust from other worksheet															0.74	0.07	
Total 2025 Site Grading Emissions											0.27	0.04	0.38	0.00	0.77	0.11	460.28
Year 2025 Construction																	
2 Concrete/Industrial Saw	81	0.59	8	0.53	0.06	1.29	0.00	0.09	0.08	596.00	0.09	0.01	0.23	0.00	0.02	0.01	105.40
2 Crane	238	0.43	8	0.08	0.02	0.29	0.00	0.02	0.02	530.97	0.03	0.01	0.11	0.00	0.01	0.01	201.08
6 Rough Terrain Forklift	86	0.59	8	0.49	0.04	1.18	0.00	0.08	0.07	596.04	0.27	0.02	0.66	0.00	0.04	0.04	335.74
0 Rubber Tire Loader	136	0.59	8	0.17	0.03	0.40	0.00	0.05	0.04	536.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Tractors/Loader/Backhoe	87	0.21	8	2.08	0.42	2.33	0.00	0.37	0.36	694.79	0.14	0.03	0.16	0.00	0.02	0.02	46.97
4 Other Construction Equipment	234	0.59	8	0.15	0.04	0.46	0.00	0.03	0.03	536.72	0.15	0.04	0.47	0.00	0.03	0.03	548.40
Employee Trips (miles) ⁴	243,527			3.84	0.26	0.18	0.00	0.02	0.01	333.03	1.03	0.07	0.05	0.00	0.01	0.00	89.40
Vendor Trips	124,732			4.48	0.40	1.56	0.00	0.12	0.06	1088.91	0.62	0.05	0.21	0.00	0.02	0.01	149.72
Paving⁵																	
2 Paver	135	0.59	8	0.13	0.02	0.34	0.00	0.03	0.03	536.77	0.00	0.00	0.01	0.00	0.00	0.00	15.07
2 Paving Equipment	131	0.59	8	0.21	0.04	0.52	0.00	0.05	0.05	536.72	0.01	0.00	0.01	0.00	0.00	0.00	14.62
2 Rollers	132	0.59	8	0.17	0.03	0.40	0.00	0.05	0.04	536.75	0.00	0.00	0.01	0.00	0.00	0.00	14.73
Asphalt Emissions												0.03					
Employee Trips (miles) ⁴	3000			3.84	0.26	0.18	0.00	0.02	0.01	333.03	0.01	0.00	0.00	0.00	0.00	0.00	1.10
Architectural Coating⁶																	
2 Air Compressor	37	0.48	8	0.30	0.10	2.56	0.00	0.03	0.02	590.08	0.00	0.00	0.02	0.00	0.00	0.00	3.69
2 Aerial Lift	46	0.31	8	2.54	0.64	3.78	0.00	0.40	0.39	694.12	0.01	0.00	0.02	0.00	0.00	0.00	3.49
Coating												1.71					
Employee Trips (miles) ⁴	5,730			3.84	0.26	0.18	0.00	0.02	0.01	333.03	0.02	0.00	0.00	0.00	0.00	0.00	2.10
Total 2025 Construction Emissions											2.67	2.03	2.35	0.01	0.19	0.17	1991.79

Source: EPA 2023

¹ Construction equipment list adapted from CalEEMod Users Guide

² EPA Report No. NR-005d Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling. 2010

³ Hours per normal work day.

⁴ Based on 20 mile trip length. Emissions from MOVES4.

⁵ Emission factors provided by EPA MOVES 4 NONROAD

⁶ Based on 150 grams per liter VOC emission factor and **246160** sqft of total area of building space to be constructed.

Assumptions

Construction Timeline: **12 Months** **5 days/week**

2025 Workdays: Assumes that grading commences 1/1/2025

1/1/2024 5/30/2024

	Grading	Build	Pave	Coating	Hauling	Vendor
Days	40	170	20	20		170
Trips	22.5	71.6	7.5	14.3	0.0	36.7
Employee	18,000	243,527	3,000	5,730	-	124,732
Total VMT						

40 days

2025 Workdays:

210 days

Table B
Alternatives B - Reduced Intensity Construction Emissions

Construction Equipment ¹	Horsepower ²	Load Factor ²	Hours in Use ² (hours/day)	Emission Factors (g/bhp/hr) ⁴							Emission (tons/year)						
				CO	VOC	NO _x	SO ₂	PM ₁₀	PM _{2.5} ³	CO ₂	CO	VOC	NO _x	SO ₂	PM ₁₀	PM _{2.5} ³	CO ₂
Year 2025 Site Grading																	
4 Bulldozer	367	0.4	8	0.17	0.03	0.42	0.00	0.03	0.03	536.75	0.03	0.01	0.09	0.00	0.01	0.01	111.08
1 Motor Grader	148	0.41	8	0.09	0.01	0.25	0.00	0.02	0.02	536.79	0.00	0.00	0.01	0.00	0.00	0.00	11.48
2 Excavator	360	0.38	8	0.12	0.02	0.29	0.00	0.02	0.02	536.77	0.01	0.00	0.03	0.00	0.00	0.00	51.76
2 Scraper	423	0.48	8	0.18	0.03	0.45	0.00	0.03	0.03	536.75	0.03	0.00	0.06	0.00	0.00	0.00	76.81
4 Tractor/Loader/Backhoe	84	0.37	8	2.08	0.42	2.33	0.00	0.37	0.36	694.79	0.09	0.02	0.10	0.00	0.02	0.02	30.44
2 Water Truck	420	0.59	8	0.04	0.01	0.14	0.00	0.01	0.01	536.80	0.01	0.00	0.02	0.00	0.00	0.00	93.76
3 Other Construction Equipment	234	0.59	8	0.15	0.04	0.46	0.00	0.03	0.03	536.72	0.02	0.01	0.07	0.00	0.00	0.00	78.34
Employee Trips (miles) ⁴	18,000			3.84	0.26	0.18	0.00	0.02	0.01	333.03	0.08	0.01	0.00	0.00	0.00	0.00	6.61
Vendor Trips				4.48	0.40	1.56	0.00	0.12	0.06	1088.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Trips	0			3.35	0.23	3.12	0.00	0.19	0.08	1243.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust from other worksheet															0.74	0.07	
Total 2025 Site Grading Emissions											0.27	0.04	0.38	0.00	0.77	0.11	460.28
Year 2025 Construction																	
2 Concrete/Industrial Saw	81	0.59	8	0.53	0.06	1.29	0.00	0.09	0.08	596.00	0.09	0.01	0.23	0.00	0.02	0.01	105.40
2 Crane	238	0.43	8	0.08	0.02	0.29	0.00	0.02	0.02	530.97	0.03	0.01	0.11	0.00	0.01	0.01	201.08
6 Rough Terrain Forklift	86	0.59	8	0.49	0.04	1.18	0.00	0.08	0.07	596.04	0.27	0.02	0.66	0.00	0.04	0.04	335.74
0 Rubber Tire Loader	136	0.59	8	0.17	0.03	0.40	0.00	0.05	0.04	536.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Tractors/Loader/Backhoe	87	0.21	8	2.08	0.42	2.33	0.00	0.37	0.36	694.79	0.14	0.03	0.16	0.00	0.02	0.02	46.97
4 Other Construction Equipment	234	0.59	8	0.15	0.04	0.46	0.00	0.03	0.03	536.72	0.15	0.04	0.47	0.00	0.03	0.03	548.40
Employee Trips (miles) ⁴	32,640			0.28	0.03	0.74	0.00	0.05	0.05	563.51	0.01	0.00	0.03	0.00	0.00	0.00	20.27
Vendor Trips	16717.8			4.48	0.40	1.56	0.00	0.12	0.06	1088.91	0.08	0.01	0.03	0.00	0.00	0.00	20.07
Paving ⁵																	
2 Paver	135	0.59	8	0.13	0.02	0.34	0.00	0.03	0.03	536.77	0.00	0.00	0.01	0.00	0.00	0.00	15.07
2 Paving Equipment	131	0.59	8	0.21	0.04	0.52	0.00	0.05	0.05	536.72	0.01	0.00	0.01	0.00	0.00	0.00	14.62
2 Rollers	132	0.59	8	0.17	0.03	0.40	0.00	0.05	0.04	536.75	0.00	0.00	0.01	0.00	0.00	0.00	14.73
Asphalt Emissions												0.03					
Employee Trips (miles) ⁴	3000			3.84	0.26	0.18	0.00	0.02	0.01	333.03	0.01	0.00	0.00	0.00	0.00	0.00	1.10
Architectural Coating ⁶																	
2 Air Compressor	37	0.48	8	0.30	0.10	2.56	0.00	0.03	0.02	590.08	0.00	0.00	0.02	0.00	0.00	0.00	3.69
2 Aerial Lift	46	0.31	8	2.54	0.64	3.78	0.00	0.40	0.39	694.12	0.01	0.00	0.02	0.00	0.00	0.00	3.49
Coating												0.21					
Employee Trips (miles) ⁴	960			3.84	0.26	0.18	0.00	0.02	0.01	333.03	0.00	0.00	0.00	0.00	0.00	0.00	0.35
Total 2025 Construction Emissions											1.10	0.41	2.15	0.00	0.17	0.16	1791.27

Source: EPA 2023

¹ Construction equipment list adapted from CalEEMod Users Guide

² EPA Report No. NR-005d Median Life, Annual Activity, and Load Fator Values for Nonroad Engine Emissions Modeling. 2010

³ Hours per normal work day.

⁴ Based on 20 mile trip length. Emissions from MOVES4.

⁵ Emission factors provided by EPA MOVES 4 NONROAD

⁶ Based on 150 grams per liter VOC emission factor and

30000 sqft of total area of building space to be constructed.

	Grading	Build	Pave	Coating	Hauling	Vendor
Days	40	170	20	20		170
Trips	22.5	9.6	7.5	2.4	0.0	4.9
Employee Total VMT	18,000	32,640	3,000	960	-	16,718

Construction Timeline: 12 Months 5 days/week

Assumptions 2024 Workdays: Assumes that grading commences 1/1/2025

40 days

2024 Workdays:

210 days

Table 4 - Alternatives A and B Fugitive Dust Emissions

Table 4 Fugitive Dust Emissions from Construction		
	Alternative A	Alternative B
Construction area, acres ¹	17.3	17.3
Construction duration, months	12	12
General construction emission factor, tons PM ₁₀ /acre-month	0.011	0.011
Level 2 ¹ : On-site cut/fill (yd ³)	0	0
Onsite cut/fill emissions factor (tons/1000 yd ³)	0.059	0.059
Off-site-cut/fill (yd ³)	0	0
Offsite cut/fill emissions factor (tons/1000 yd ³)	0.22	0.22
Unmitigated PM₁₀ Emissions, tons/year	3.43	3.43
Unmitigated PM_{2.5} Emissions, tons/year²	0.34	0.34
BMP: Water unpaved surfaces, control efficiency, % ²	50%	50%
BMP: Limit on-site vehicle speed to 15 mph, control efficiency, % ²	57%	57%
With BMPs PM₁₀ Emissions, tons/year	0.74	0.74
With BMPs PM_{2.5} Emissions, tons/year²	0.07	0.07

Source: Western Regional Air Partnership Fugitive Dust Handbook (WRAP), 2006.

¹ Construction area from project description

² PM_{2.5}/PM₁₀ ratio for fugitive dust from construction and demolition activities is 0.1, based on Western Regional Air Partnership's (WRAP's) Fugitive Dust Handbook.

Tables 1 - Alternatives A and B Vehicle Miles Traveled

Table 1
Alternatives A through C - Percent Distribution, Patrons, and Vehicle Miles Travels per Year

Routes ¹	Market Areas	Trip Distribution ¹	Average Distance (miles)	Alternative A		Alternative B	
				Vehicle Trips per Year ¹	Vehicle Miles Traveled per Year	Vehicle Trips per Year ¹	Vehicle Miles Traveled per Year
North on Osage Beach Parkway		0.65	20	1,767,038	35,340,760	189,563	3,791,255
South on Osage Beach Parkway		0.20	17	543,704	9,242,968	58,327	991,559
West on Bagnell Dam Blvd		0.15	15	407,778	6,116,670	43,745	656,179
Totals¹:		1.00	--	2,718,520	50,700,398	291,635	5,438,993

¹ Totals from Traffic Impact Study (2024)
Number of average daily vehicle trips for Alternative A and B multiplied by 365.
Source: CJW TIA, 2024

Table 2a
2025 Mobile Operations Criteria Pollutant and GHG Emissions

Pollutant	Emission Factor, g/mi	Alternative A	Alternative B
Vehicle miles traveled per year		50,700,398	5,438,993
Criteria Pollutant Emissions (tpy)			
VOC	0.13	7.35	0.79
NOx	0.27	15.17	1.63
CO	1.86	103.99	11.16
SO ₂	0.00	0.06	0.01
PM ₁₀	0.03	1.73	0.19
PM _{2.5}	0.01	0.51	0.05
	253.77		
Greenhouse Gas (tpy)			
CO ₂ e	237.26	13,259.78	1,422.47

EPA MOVES 4

Tables 7 a, and b - Alternatives A, and B Stationary Source Emissions

Table 7a
Alternative A

Pollutant/GHG	MMscf/year	Emission Factors (lb/MMscf)	Conversion factor (lb/tons)	NG Emissions (tons)	Generator Emissions	Total Emissions
VOC	15.62	5.50	0.0005	0.04	0.02	0.06
NOx	15.62	0.64	0.0005	0.00	0.40	0.41
CO	15.62	11.00	0.0005	0.09	0.23	0.32
SO2	15.62	0.60	0.0005	0.00	0.08	0.09
PM10	15.62	5.70	0.0005	0.04	0.01	0.06
PM2.5	15.62	1.90	0.0005	0.01	0.01	0.03
Greenhouse Gas			lb/MT	MT	MT	MT
CO2	15.62	120,000	0.00045	843	46.24	889.65

Stationary Sources include boilers, stoves, heating units, and other equipment.

Source: EPA, AP 42, 1997; Montrose 2024.

Assumptions

Casino Natural Gas Use

Casino 136.4 kBtu/ft² per year

Alternative A Casino Square Footage 75,000 square feet

Total Casino Energy Use = Rate x SF = 10,230,000 kbtu/yr or

Total Energy= 10,230 MMBtu/yr * 1 MMscf/1,028 MMBtu = **10.0 MMscf/yr** (uses default EPA High Heat Value for Natural Gas)

Hotel Natural Gas Use

Hotel 85.7 kBtu/ft² per year

Alternative A/B Hotel Square Footage 120,330 square feet

Total Hotel Energy Use = Rate x SF = 10,312,281 kbtu/yr or

Total Energy= 10,312 MMBtu/yr * 1 MMscf/1,028 MMBtu = **10.0 MMscf/yr** (uses default EPA High Heat Value for Natural Gas)

Restaurant Natural Gas Use

Restaurant 263.3 kBtu/ft² per year

Alternative A Restaurant Square Footage 11,500 square feet

Total Casino Energy Use = Rate x SF = 3,027,950 kbtu/yr or

Total Energy= 3,028 MMBtu/yr * 1 MMscf/1,028 MMBtu = **2.9 MMscf/yr** (uses default EPA High Heat Value for Natural Gas)

Convention Center Natural Gas Use

Convention 81.1 kBtu/ft² per year (restaurants)

Alternative C Convention Square Footage 39,330 square feet

Total Casino Energy Use = Rate x SF = 3,189,663 kbtu/yr or

Total Energy= 3,190 MMBtu/yr * 1 MMscf/1,028 MMBtu = **3.1 MMscf/yr**

Natural gas use accounted the following percent of the total energy use= **0.6 %**

Therefore, natural gas use would be approximately= **15.62 MMscf/yr**

From EIA CBECS 2018 Table E2

Table 7b
Alternative B

Pollutant/GHG	MMscf/year	Emission Factors (lb/MMscf)	Conversion factor (lb/tons)	NG Emissions (tons)	Generator Emissions	Total Emissions
VOC	1.50	5.50	0.0005	0.00	0.02	0.03
NOx	1.50	0.64	0.0005	0.00	0.40	0.40
CO	1.50	11.00	0.0005	0.01	0.23	0.24
SO2	1.50	0.60	0.0005	0.00	0.08	0.08
PM10	1.50	5.70	0.0005	0.00	0.01	0.02
PM2.5	1.50	1.90	0.0005	0.00	0.01	0.01
Greenhouse Gas			lb/MT	MT	MT	MT
CO2	1.50	120,000	0.00045	81	46.24	127.28

Stationary Sources include boilers, stoves, heating units, and other equipment.

Source: EPA, AP 42, 1997; Montrose 2024.

Assumptions

Casino Natural Gas Use

Casino 136.4 kBtu/ft² per year (restaurants)

AlternativeB Casino Square Footage 0 square feet

Total Casino Energy Use = Rate x SF = 0 kbtu/yr or 0 MMBtu/yr

Total Energy= 0 MMBtu/yr * 1 MMscf/1,028 MMBtu =

0.0 MMscf/yr (uses default EPA High Heat Value for Natural Gas)

In the study, natural gas use accounted for 60 percent of the total energy use.

Hotel Natural Gas Use

Hotel 85.7 kBtu/ft² per year

Alternative A/B Hotel Square Footage 30,000 square feet

Total HotelEnergy Use = Rate x SF = 2,571,000 kbtu/yr or 2,571 MMBtu/yr

Total Energy= 2,571 MMBtu/yr * 1 MMscf/1,028 MMBtu =

2.5 MMscf/yr (uses default EPA High Heat Value for Natural Gas)

Restaurant Natural Gas Use

Restaurant 263.3 kBtu/ft² per year

Alternative A Restaurant Square Footage 0 square feet

Total Casino Energy Use = Rate x SF = 0 kbtu/yr or 0

Total Energy= 0 MMBtu/yr * 1 MMscf/1,028 MMBtu =

0.0 MMscf/yr

Natural gas use accounted the following percent of the total energy use=

0.6 %

Therefore, natural gas use would be approximately=

1.50 MMscf/yr

Emergency Generators Alternative A

Quantity of engines
 Fuel
 kW
 Duration of use per year, hrs
 EPA Tier

1
 Diesel
 2000
 30
 2

Pollutant	Emission Factor, g/kW-s hr	Emission Rate, lb/hr	Emissions, tpy
NMHC (ROG)	0.32	1.41	0.02
NOX	6.08	26.81	0.40
PM10	0.2	0.88	0.01
PM2.5	0.2	0.88	0.01
CO	3.5	15.43	0.23
CO2	699.2	3082.94	46.24
SOX	1.25	5.50	0.08

Note: Emission factors for NMHC+NOX, PM, and CO based on EPA Tier 2
 Emission factor for NMHC+NOX (6.4 g/kW-hr) split 5% NMHC and 95% NOX,
 Emergency generators assumed to run a total of 30 hours per year.

Sources: Butera et al, 2016. KOHLER Power Systems 2012. USEPA 1995. USEPA 2016.

Emergency Generators Alternative B

Quantity of engines
 Fuel
 kW
 Duration of use per year, hrs
 EPA Tier

1
 Diesel
 2000
 30
 2

Pollutant	Emission Factor, g/kW-s hr	Emission Rate, lb/hr	Emissions, tpy
NMHC (ROG)	0.32	1.41	0.02
NOX	6.08	26.81	0.40
PM10	0.2	0.88	0.01
PM2.5	0.2	0.88	0.01
CO	3.5	15.43	0.23
CO2	699.2	3082.94	46.24
SOX	1.25	5.50	0.08

Note: Emission factors for NMHC+NOX, PM, and CO based on EPA Tier 2
 Emission factor for NMHC+NOX (6.4 g/kW-hr) split 5% NMHC and 95% NOX,
 Emergency generators assumed to run a total of 30 hours per year.

Sources: Butera et al, 2016. KOHLER Power Systems 2012. USEPA 1995. USEPA 2016.

Allowable Emissions (Tribal New Source review)

Quantity of engines
 Fuel
 kW
 Duration of use per year, hrs
 EPA Tier

1
 0
 2000
 30
 0

Pollutant	Emission Factor, g/kW-hr	Emissions Rate, lb/hr	Emissions, tpy
NMHC (ROG)	0.32	1.41	0.02
NOX	6.08	26.81	0.40
PM10	0.2	0.88	0.01
PM2.5	0.2	0.88	0.01
CO	3.5	15.43	0.23
CO2	699.2	3082.94	46.24
SOX	1.25	5.50	0.08

Note: Emission factors for NMHC+NOX, PM, and CO based on EPA Tier 2
 Emission factor for NMHC+NOX (6.4 g/kW-hr) split 5% NMHC and 95%
 Emergency generators assumed to run a total of 30 hours per year.

Sources: Butera et al, 2016. KOHLER Power Systems 2012. USEPA 1995. USEPA 2016.

Alternative A

	Emission Factors			Use	Emissions
	CO ₂	CH ₄	N ₂ O		(MT of CO ₂ e)
	lbs of/MWh			MWh ¹ per Year	
Electricity ²	1369.887	0.151	0.022	3,139	1,964.58
	MT of CO ₂ /MT of Solid Waste			MT per Year	
Solidwaste ²	0.52			150	77.76
Water/Wastewater ³	Indoors		Outdoor		
	MWh/million Gallons			Million Gallons per Year	
	0.57	0.63 %	0.33 0.37 %	25.19	7.58

WA egrid

Total Emissions from Electricity, Solidwaste, and Water/Wastewater **2,049.93** MT CO₂e/year

¹ Assumes electricity is 40% of total energy use calculated for operational stationary sources

²From EPA's GHG emission Factors Hub 2023 <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>
eGRID Wisconsin

Alternative B

	Emission Factors			Use	Emissions
	CO ₂	CH ₄	N ₂ O		(MT of CO ₂ e)
	lbs of/MWh			MWh ¹ per Year	
Electricity ¹	1369.887	0.151	0.022	302	188.75
	MT of CO ₂ /MT of Solid Waste			MT per Year	
Solidwaste ¹	0.52			72	37.36
Water/Wastewater ²	Indoors		Outdoor		
	MWh/million Gallons			Million Gallons per Year	
	0.57	0.63 %	0.33 0.37 %	4.61	1.39

Total Emissions from Electricity, Solidwaste, and Water/Wastewater **227.50** MT CO₂e/year

¹ Assumes electricity is 40% of total energy use calculated for operational stationary sources

²From EPA's GHG emission Factors Hub 2023 <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>
eGRID Wisconsin