Appendix 3.14-1

Greenhouse Gas Emissions Calculations

Sands New York

Proposed Action Greenhouse Gas (GHG) Emissions Summary

Direct Sources (Metric Tons CO_2e/year)			
	Baseline Emissions	**Mitigation Savings**	**Proposed Emissions**
Stationary	22,073	-1,938	20,136
Mobile	390	0	390
Total Direct	22,463	-1,938	20,525
Indirect Sources (Metric Tons CO_2e/year)			
	Baseline Emissions	**Mitigation Savings**	**Proposed Emissions**
Stationary	72,644	-14,529	58,115
Mobile	38,423	0	38,423
Solid Waste	3,931	-790	3,142
Total Indirect	114,998	-15,318	99,680
Total Site (Metric Tons CO_2e/year)			
	Baseline Emissions	**Mitigation Savings**	**Proposed Emissions**
Proposed Action	137,461	-17,256	120,205

Sands New York

Direct Stationary Source GHG Emissions

Energy Consumption

Area Use	Direct Natural Gas		Direct Diesel Fuel in Million British Thermal Units (MMBtu)	
Hotel Guest Floor	0	therms	0	MMBtu
Hotel Public Space	0	therms	0	MMBtu
Hotel Front Office	0	therms	0	MMBtu
Hotel Recreation Facilities	0	therms	0	MMBtu
Main Entries	0	therms	0	MMBtu
Retail/Food and Beverage	3,648,295	therms	0	MMBtu
Gaming Facilities	0	therms	0	MMBtu
Convention Center	0	therms	0	MMBtu
Back of House and Support Areas	0	therms	0	MMBtu
Central Utility Plant	0	therms	36,324	MMBtu
Total Consumption	**3,648,295**	**therms**	**36,324**	**MMBtu**

Parameter	Direct Natural Gas		Direct Diesel Fuel	
Baseline Total Estimated Annual Consumption	**364,829**	**MMBTu**	**36,324**	**MMBtu**
CO_2 Emission Factor[1]	117	Pounds Per MMBtu	163	Pounds Per MMBtu
CH_4 Emission Factor[1]	0.0022	Pounds Per MMBtu	0.0066	Pounds Per MMBtu
N_2O Emission Factor[1]	0.0002	Pounds Per MMBtu	0.0013	Pounds Per MMBtu
CO_2 Emissions	19,358	Metric Tons Per Year	2,687	Metric Tons Per Year
CH_4 Emissions	0.365	Metric Tons Per Year	0.109	Metric Tons Per Year
N_2O Emissions	0.036	Metric Tons Per Year	0.022	Metric Tons Per Year
CO_2Global Warming Potential[1]	1	-	1	-
CH_4 Global Warming Potential[1]	28	-	28	-
N_2O Global Warming Potential[1]	265	-	265	-
Baseline Total CO_2e	**19,378**	**Metric Tons Per Year**	**2,695**	**Metric Tons Per Year**
Proposed Action Design Total Consumption[2]	**328,347**	**MMBtu**	**36,324**	**MMBtu**
CO_2 Emission Factor[1]	117	Pounds Per MMBtu	163	Pounds Per MMBtu
CH_4 Emission Factor[1]	0.0022	Pounds Per MMBtu	0.0066	Pounds Per MMBtu
N_2O Emission Factor[1]	0.0002	Pounds Per MMBtu	0.0013	Pounds Per MMBtu
CO_2 Emissions	17,422	Metric Tons Per Year	2,687	Metric Tons Per Year
CH_4 Emissions	0.328	Metric Tons Per Year	0.109	Metric Tons Per Year
N_2O Emissions	0.033	Metric Tons Per Year	0.022	Metric Tons Per Year
CO_2Global Warming Potential[1]	1	-	1	-
CH_4 Global Warming Potential[1]	28	-	28	-
N_2O Global Warming Potential[1]	265	-	265	-
Proposed Action Design Total CO_2e	**17,440**	**Metric Tons Per Year**	**2,695**	**Metric Tons Per Year**
Emissions Avoided CO_2e	**1,938**	**Metric Tons Per Year**	**0**	**Metric Tons Per Year**

Notes:

Estimated natural gas and diesel usage provided by JB&B, 2024.

1. Emission Factors and Global Warming Potential (GWP) from: U.S. Environmental Protection Agency, "2024 Emission Factors for Greenhouse Gas Inventories," modified June 5, 2024, https://www.epa.gov/climateleadership/ghg-emission-factors-hub.

2. The applicant is anticipated to achieve a minimum 10 percent reduction in natural gas consumption and resulting estimated GHG emissions compared to the baseline scenario by using Energy Star-rated appliances and equipment in the industrial kitchens (e.g., ranges and cooktops, ovens, griddles, fryers, steam cookers, etc.).

INSTRUCTIONS: Enter the project's build year and annual vehicle miles traveled (VMT) in the yellow boxes below, with separate entries for Manhattan and Bronx, Brooklyn, Queens, and Staten Island combined. Total metric tons of CO_2e for will be calculated and shown in the blue boxes.

Build Year: 2030

Manhattan		Passenger Vehicle	Taxi	Local Shuttle Bus
Local	VMT			
Arterial	VMT			
Int/Exp	VMT			
Bronx, Brooklyn, Queens, Staten Island		Passenger Vehicle	Taxi	Local Shuttle Bus
Local	VMT			206,590
Arterial	VMT			
Int/Exp	VMT			

ANNUAL CARBON DIOXIDE EQUIVALENT (CO_2e) EMISSIONS					
Manhattan					
Road type		Passenger Vehicle	Taxi/ Rideshare	Local Shuttle Bus	**TOTAL**
Local	CO_2e (metric tons)	-	-	-	**-**
Arterial	CO_2e (metric tons)	-	-	-	**-**
Int/Exp	CO_2e (metric tons)	-	-	-	**-**
TOTAL	CO_2e (metric tons)	**-**	**-**	**-**	**-**
Bronx, Brooklyn, Queens, Staten Island					
Road type		Passenger Vehicle	Taxi/ Rideshare	Local Shuttle Bus	**TOTAL**
Local	CO_2e (metric tons)	-	-	389.92	**389.92**
Arterial	CO_2e (metric tons)	-	-	-	**-**
Int/Exp	CO_2e (metric tons)	-	-	-	**-**
TOTAL	CO_2e (metric tons)	**-**	**-**	**389.92**	**389.92**

Note: VMT estimates developed internally by VHB Project/Traffic Team

Sands New York

Indirect Stationary Source GHG Emissions

Energy Consumption

Parameter	Greenhouse Gas Emissions Indirect Electricity	
Baseline Total Estimated Annual Consumption[1]	**131,415**	**Megawatt Hours (MWh)**
CO_2 Emission Factor[2]	1,211	Pounds Per MWh
CH_4 Emission Factor[2]	0.126	Pounds Per MWh
N_2O Emission Factor[2]	0.016	Pounds Per MWh
CO_2 Emissions	72,181	Metric Tons Per Year
CH_4 Emissions	7.51	Metric Tons Per Year
N_2O Emissions	0.95	Metric Tons Per Year
CO_2 Global Warming Potential[2]	1	-
CH_4 Global Warming Potential[2]	28	-
N_2O Global Warming Potential[2]	265	-
Baseline Total CO_2e Emissions	**72,644**	**Tons Per Year**
Proposed Action Design Total Consumption[3]	**105,132**	**Megawatt Hours (MWh)**
CO_2 Emission Factor[2]	1,211	Pounds Per MWh
CH_4 Emission Factor[2]	0.126	Pounds Per MWh
N_2O Emission Factor[2]	0.016	Pounds Per MWh
CO_2 Emissions	57,745	Metric Tons Per Year
CH_4 Emissions	6.01	Metric Tons Per Year
N_2O Emissions	0.76	Metric Tons Per Year
CO_2 Global Warming Potential[2]	1	-
CH_4 Global Warming Potential[2]	28	-
N_2O Global Warming Potential[2]	265	-
Proposed Action Design Total CO_2e Emissions	**58,115**	**Metric Tons Per Year**
Emissions of CO_2e Avoided	**14,529**	**Metric Tons Per Year**

Notes:

Electric service based on energy simulation modeling and analysis conducted by JB&B, 2024.

1. In the baseline scenario, the Lessee is anticipated to exceed the New York State Energy Code by a minimum of 8 percent by installing an on-site system of solar photovoltaics (PVs) and by incorporating energy efficiency measures.

2. Emission Factors and Global Warming Potential (GWP) from: U.S. Environmental Protection Agency, "2024 Emission Factors for Greenhouse Gas Inventories," modified June 5, 2024, https://www.epa.gov/climateleadership/ghg-emission-factors-hub.

3. In the proposed action, the Lessee is anticipated to achieve an additional 20 percent reduction in indirect stationary source GHG emissions beyond the baseline scenario by sourcing at least 20 percent of electricity from renewable sources.

INSTRUCTIONS: Enter the project's build year and annual vehicle miles traveled (VMT) in the yellow boxes below, with separate entries for Manhattan and Bronx, Brooklyn, Queens, and Staten Island combined. Total metric tons of CO_2e for will be calculated and shown in the blue boxes.

Build Year: 2030

Manhattan		Passenger Vehicle	Taxi/ Rideshare	Shuttle Bus
Local	VMT			
Arterial	VMT			
Int/Exp	VMT			
Bronx, Brooklyn, Queens, Staten Island		Passenger Vehicle	Taxi/ Rideshare	Shuttle Bus
Local	VMT			
Arterial	VMT			
Int/Exp	VMT	134,941,960	6,610,880	1,490,295

ANNUAL CARBON DIOXIDE EQUIVALENT (CO_2e) EMISSIONS					
Manhattan					
Road type		Passenger Vehicle	Taxi/ Rideshare	Shuttle Bus	**TOTAL**
Local	CO_2e (metric tons)	-	-	-	**-**
Arterial	CO_2e (metric tons)	-	-	-	**-**
Int/Exp	CO_2e (metric tons)	-	-	-	**-**
TOTAL	CO_2e (metric tons)	**-**	**-**	**-**	**-**
Bronx, Brooklyn, Queens, Staten Island					
Road type		Passenger Vehicle	Taxi/ Rideshare	Shuttle Bus	**TOTAL**
Local	CO_2e (metric tons)	-	-	-	**-**
Arterial	CO_2e (metric tons)	-	-	-	**-**
Int/Exp	CO_2e (metric tons)	35,268.88	1,519.91	1,633.91	**38,422.71**
TOTAL	CO_2e (metric tons)	**35,268.88**	**1,519.91**	**1,633.91**	**38,422.71**

Note: VMT developed internally by VHB Project/Traffic Team

Sands New York

Indirect Solid Waste GHG Emissions Analysis

Parameter	Value	Units
Estimated Total Annual Solid Waste Generation	9,360	US Tons Per Year
Estimated Annual Recycling (Diverted from Landfill)	1,880	US Tons Per Year
Estimated Annual Solid Waste Disposed in Landfill	7,480	US Tons Per Year
Solid Waste to Landfill Emission Factor, CO_2e[1]	0.42	Metric Tons CO_2e Per US Ton of Waste
CO_2e Emissions if all Solid Waste Generated was Disposed in Landfill	**3,931**	**Metric Tons Per Year**
CO_2e Emissions Saved by Recycling	**-790**	**Metric Tons Per Year**
CO_2e Emissions from Solid Waste Disposed in Landfill (Proposed Action)	**3,142**	**Metric Tons Per Year**

Notes:

Solid waste and recycling amounts estimated by Las Vegas Sands Corp., August 2024.

1. Emission factor for Mixed Municipal Solid Waste as Disposed in a Landfill from the U.S. Environmental Protection Agency, *Solid Waste Management and Greenhouse Gases: A Lifecycle Assessment of Emissions and Sinks* , 3rd Edition, September 2006, Exhibit B-1, "Net GHG Emissions from Source Reduction and MSW Management Options - Emissions Counted from a Waste Generation Reference Point (MTCO2E/Ton)," page 127, https://www.loc.gov/item/2006470266/.