ENVIRONMENTAL IMPACT STATEMENT

SPACEX STARSHIP-SUPER HEAVY LAUNCH VEHICLE AT LAUNCH COMPLEX 39A

at the Kennedy Space Center, Merritt Island, Florida

Final, Volume II, Appendix C.2, Part 1

January 2026

Federal Aviation Administration

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C.2   Air Quality Assessment

C.2.1   Engine Emissions Analysis

Example Scenario

Ship (MT)
LOX		Lower	Upper
	Total	20	40

Fuel			
	Total	7	16

Super Heavy SH (MT)
LOX			
	Total	58	73

Fuel			
	Total	28	28

Nominal Static Fire
MT Ship: Residual propellant ranges remaining
	GCH4	Total	6.73

MT SH: Residual propellant ranges remaining
	GCH4	10.32

Seconds of entire flight up to 3000 ft
0-3000 ft. 20 sec
3000-0 ft. 20 sec   Note: 3000ft from Guidance on Using the Aviation Environmental Tool to Conduct Environmental Modeling for the FAA section 2.1.2, 12 Sept 2016.

Example Scenario

Ship (MT)
LOX		Lower	Upper
	Total	2	9

Fuel			
	Total	6	11

SH (MT)
LOX			
	Total	22	22

Fuel			
	Total	14	14

Landing Event at Cape
MT Ship: Venting for a Landing Event
	GCH4	Total	17

Landing Event at Cape
MT SH: Venting for a Landing Event
	GCH4	Total	26

Emission Calcs
From Sierra Analysis Report dated 19 and 26 Dec 2024 for LC-39A

CO

0.29 lbm/s	per engine (eng) of CO for booster and SL Starship engines			
0.053 lbm/sec	per engine (eng) of CO for RVac Starship engines			

Starship SL (3 eng)	0.87 lbm/s		
Starship Rvac (6 eng)	0.318 lbm/sec		
SH (35 eng)	10.15 lbm/s		

		44 Launches/yr	
Launch (0-3,000'):		Tons	Metric Tons (MT)
SH (21sec)	213.15 lbm	9378.6 lb	4.6893 tons	4.25

		44 Landings/yr		
Landing (3,000-0):				
Starship (20s, 3 eng)	17.4 lbm	765.6 lb	0.3828 tons	0.35
		44 Landings/yr		
SH (20s, 7 eng)	40.6 lbm	1786.4 lb	0.8932 tons	0.81

		44 Static Fires		
Static Fire				
Starship SL (15 sec)	13.05 lbm	574.2 lbm	0.2871 tons	0.26
Starship Rvac (15 sec)	4.77 lbm	209.88 lbm	0.10494 tons	0.10
SH (15 sec)	152.25 lbm	6699 lbm	3.3495 tons	3.04

9.71 tons	8.81 MT

Metric Tons
44 Orbital Launches
44 Static Fire Ship   5% of Ship needs to static fire after initial firing at Cape
44 Static Fire SH   10% of Ship needs to static fire after initial firing at Cape
44 Ship landings
44 SH Landings

8.81 MT from 44 orbital launches, landings and static fires (cell I26)
6.73 MT Ship: Residual propellant ranges remaining following a nominal static fire, if vented

10.32 MT SH: Residual propellant ranges remaining following a nominal static fire, if vented
17 MT Ship: Venting for a Landing event
26 MT SH: Venting for landing event

2651.006 MT Methane per yr
66275.15 MT CO2e/yr   25 is the Global Warming Potential (GWP) of Methane to CO2e

GHG

CO2	986.3 lbm/sec	per engine for booster and SL Starship engines (3)	
CO2	955.5 lbm/sec	per engine for RVac Starship engines (6)	

		44 Launches/yr	
Launch (entire flight)		Tons	Metric Tons (MT)
SH (35 eng, 185sec assumed)	6386293 lb	140498.4	127458.07

		44 Landings/yr	
Landing (total burn):			
Starship (20s, 3 engines)	59178 lb	1301.916	1181.08
SH (20s, 7 engines)	138082 lb	3037.804	2755.85

		Static Fires	
Static Fire			
Starship SL (15 sec)	44383.5 lb	976.437	885.81
Starship Rvac (15 sec)	88767	1952.874	1771.62
SH (15 sec)	517807.5 lb	11391.77	10334.44

159159.2 tons	144386.87 MT
	210662.01 MT with methane operations described above for CO2e

Emission Calcs
From Sierra 2024 report

9.19 lbm/s	per engine (eng) of NOx at Sea Level (SL)			
12.82 lbm/s	per engine (eng) of NOx of RVac Eng			

Starship-SL engines	27.57 lb/s		76.92 lb/s	Starship RVac Engines
SH (35 engines)	321.65 lb/s			

Note: Starship has 3 Sea Level (SL) Engines and 3 Rvac Engines (engines which operate in the vacuum of space)

			Tons	Metric Tons (MT)
Launch (0-3,000'):		**44 Launches/yr**		
SH (21sec)	6754.65 lb	297204.6 lb	148.6	134.8
Landing (3,000-0):		**44 Landings/yr**		
Starship (20s, 3 eng)	551.4 lb	24261.6 lb	12.1	11.0
SH (20s, 7 engines)	1286.6 lb	56610.4 lb	28.3	25.7
Static Fire		**44 Static Fires/yr for Starship**	**44 Static Fires/yr for SH**	
Starship SL (15 sec)	413.55 lb	18196.2	9.1	8.3
Starship RVac (15 sec)	1153.8 lb	50767.2	25.4	23.0
SH (15 sec)	4824.75 lb	212289	106.1	96.3

		Total:	223.5 Tons	299.1 MT

C.2.2   ACAM Construction Analysis

APPENDIX A

AIR QUALITY CALCULATIONS

A.1 AIR QUALITY CALCULATIONS

This section presents an export of results directly from the air quality modeling software, retaining the organizational headings, text and table formatting produced by the software.

A.1.1

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT
1. General Information

- **Action Location**
    Base: CAPE CANAVERAL AFS
    State: Florida
    County(s):   Brevard
    Regulatory Area(s):   NOT IN A REGULATORY AREA

- **Action Title:**   SpaceX Starship-Heavy Launch Vehicle at Launch Complex 39A at the Kennedy Space Center, Cape Canaveral, Florida

- **Project Number/s (if applicable):**   N/A

- **Projected Action Start Date:**   1 / 2026

- **Action Purpose and Need:**
    To increase operational efficiency, capabilities, and cost effectiveness of the Starship-Super Heavy program.

- **Action Description:**
    SpaceX's proposed operations include construction of a SpaceX starship-super heavy launch/landing pad and other launch support infrastructure at LC-39A, launches at LC-39A, landings at LC-39A, and landings in the ocean.

- **Point of Contact**
    Name: Allison Williams
    Title: Environmental Scientist
    Organization: Leidos Corporation
    Email: allison.williams@leidos.com
    Phone Number: 719-470-9579

Report generated with ACAM version: 5.0.23a

- **Activity List:**

	Activity Type	Activity Title
2.	Construction / Demolition	Liquid Oxygen Farm
3.	Construction / Demolition	Pervious Water percolation Pond and Impervious Water Retention Pond
4.	Construction / Demolition	Methane Farm
5.	Construction / Demolition	Integration Tower
6.	Construction / Demolition	Launch Mount
7.	Construction / Demolition	Catch Tower
8.	Construction / Demolition	LN2 Farms
9.	Construction / Demolition	Water Farm
10.	Construction / Demolition	Vaporization Farm

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- **Activity Location**
  County: Brevard
  Regulatory Area(s):   NOT IN A REGULATORY AREA

- **Activity Title:**   Liquid Oxygen Farm

- **Activity Description:**
  Construction of LOX storage tank/LOX Farm.

- **Activity Start Date**
  Start Month: 1
  Start Month: 2026

- **Activity End Date**
  Indefinite: False
  End Month: 3
  End Month: 2026

- **Activity Emissions:**

Pollutant	Total Emissions (TONs)
VOC	0.719622
SO$_x$	0.001612
NO$_x$	0.798977
CO	1.049273

Pollutant	Total Emissions (TONs)
PM 10	3.243247
PM 2.5	0.028927
Pb	0.000000
NH$_3$	0.002136

- **Activity Emissions of GHG:**

Pollutant	Total Emissions (TONs)
CH$_4$	0.006836
N$_2$O	0.003326

Pollutant	Total Emissions (TONs)
CO$_2$	179.103744
CO$_2$e	180.265562

- **Global Scale Activity Emissions for SCGHG:**

Pollutant	Total Emissions (TONs)
CH$_4$	0.006835
N$_2$O	0.003326

Pollutant	Total Emissions (TONs)
CO$_2$	179.075784
CO$_2$e	180.237446

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- **Phase Start Date**
  Start Month: 1
  Start Quarter: 1
  Start Year: 2026

- **Phase Duration**

Number of Month: 3
Number of Days: 0

2.1.2 Site Grading Phase Assumptions

- **General Site Grading Information**
    Area of Site to be Graded (ft²):   53810
    Amount of Material to be Hauled On-Site (yd³):   0
    Amount of Material to be Hauled Off-Site (yd³):   0

- **Site Grading Default Settings**
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- **Construction Exhaust (default)**

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	6
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	6
Tractors/Loaders/Backhoes Composite	1	7

- **Vehicle Exhaust**
    Average Hauling Truck Capacity (yd³):   20 (default)
    Average Hauling Truck Round Trip Commute (mile):   20 (default)

- **Vehicle Exhaust Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- **Worker Trips**
    Average Worker Round Trip Commute (mile):   20 (default)

- **Worker Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Site Grading Phase Emission Factor(s)

- **Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)**

Graders Composite [HP: 148] [LF: 0.41]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.31292	0.00490	2.52757	3.39734	0.14041	0.12918

Other Construction Equipment Composite [HP: 82] [LF: 0.42]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.28160	0.00487	2.73375	3.50416	0.15811	0.14546

Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.35280	0.00491	3.22260	2.72624	0.14205	0.13069

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- **Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)**

Graders Composite [HP: 148] [LF: 0.41]

	CH₄	N₂O	CO₂	CO₂e
Emission Factors	0.02153	0.00431	530.81500	532.63663
Other Construction Equipment Composite [HP: 82] [LF: 0.42]				
	CH₄	N₂O	CO₂	CO₂e
Emission Factors	0.02140	0.00428	527.54121	529.35159
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]				
	CH₄	N₂O	CO₂	CO₂e
Emission Factors	0.02160	0.00432	532.54993	534.37751
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH₄	N₂O	CO₂	CO₂e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- **Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)**

	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5	NH₃
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- **Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)**

	CH₄	N₂O	CO₂	CO₂e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

2.1.4 Site Grading Phase Formula(s)

- **Fugitive Dust Emissions per Phase**

$PM10_{FD} = (20 * ACRE * WD) / 2000$

> $PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
> 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
> ACRE: Total acres (acres)
> WD: Number of Total Work Days (days)
> 2000: Conversion Factor pounds to tons

- **Construction Exhaust Emissions per Phase**

$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

> CEE_{POL}: Construction Exhaust Emissions (TONs)
> NE: Number of Equipment
> WD: Number of Total Work Days (days)
> H: Hours Worked per Day (hours)
> HP: Equipment Horsepower
> LF: Equipment Load Factor
> EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
> 0.002205: Conversion Factor grams to pounds
> 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
> $HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
> HC: Average Hauling Truck Capacity (yd^3)
> (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
> HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Vehicle Exhaust On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> WD: Number of Total Work Days (days)
> WT: Average Worker Round Trip Commute (mile)
> 1.25: Conversion Factor Number of Construction Equipment to Number of Works
> NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Worker Trips On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

2.2 Trenching/Excavating Phase

2.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date

Start Month:	1
Start Quarter:	1
Start Year:	2026

- Phase Duration

Number of Month:	3
Number of Days:	0

2.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information

Area of Site to be Trenched/Excavated (ft^2):	53810
Amount of Material to be Hauled On-Site (yd^3):	0

Amount of Material to be Hauled Off-Site (yd³):   0

- Trenching Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
    Average Hauling Truck Capacity (yd³):   20 (default)
    Average Hauling Truck Round Trip Commute (mile):   20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.39317	0.00542	3.40690	4.22083	0.09860	0.09071
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.45335	0.00542	3.58824	4.59368	0.11309	0.10404
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02381	0.00476	587.02896	589.04350
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02385	0.00477	587.87714	589.89459
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129

LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

2.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

> $PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
> 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
> ACRE: Total acres (acres)
> WD: Number of Total Work Days (days)
> 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

> CEE_{POL}: Construction Exhaust Emissions (TONs)
> NE: Number of Equipment
> WD: Number of Total Work Days (days)
> H: Hours Worked per Day (hours)
> HP: Equipment Horsepower
> LF: Equipment Load Factor
> EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
> 0.002205: Conversion Factor grams to pounds
> 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)
> $HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd³)
> HC: Average Hauling Truck Capacity (yd³)
> (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
> HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> WD: Number of Total Work Days (days)
> WT: Average Worker Round Trip Commute (mile)
> 1.25: Conversion Factor Number of Construction Equipment to Number of Works
> NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Worker Trips On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

2.3 Building Construction Phase

2.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

2.3.2 Building Construction Phase Assumptions

- General Building Construction Information
    Building Category: Office or Industrial
    Area of Building (ft²):   53810
    Height of Building (ft):   12.41
    Number of Units: N/A

- Building Construction Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	6
Forklifts Composite	2	6
Generator Sets Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

Welders Composite	3	8

- **Vehicle Exhaust**
    Average Hauling Truck Round Trip Commute (mile):   20 (default)

- **Vehicle Exhaust Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- **Worker Trips**
    Average Worker Round Trip Commute (mile):   20 (default)

- **Worker Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- **Vendor Trips**
    Average Vendor Round Trip Commute (mile):   40 (default)

- **Vendor Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

2.3.3 Building Construction Phase Emission Factor(s)

- **Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)**

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.19758	0.00487	1.83652	1.63713	0.07527	0.06925
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.24594	0.00487	2.34179	3.57902	0.11182	0.10287
Generator Sets Composite [HP: 14] [LF: 0.74]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.53947	0.00793	4.32399	2.85973	0.17412	0.16019
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839
Welders Composite [HP: 46] [LF: 0.45]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.46472	0.00735	3.57020	4.49314	0.09550	0.08786

- **Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)**

Cranes Composite [HP: 367] [LF: 0.29]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.46069	529.27080
Forklifts Composite [HP: 82] [LF: 0.2]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02138	0.00428	527.09717	528.90603
Generator Sets Composite [HP: 14] [LF: 0.74]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02305	0.00461	568.32694	570.27730
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

Welders Composite [HP: 46] [LF: 0.45]

	CH₄	N₂O	CO₂	CO₂e
Emission Factors	0.02305	0.00461	568.29068	570.24091

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5	NH₃
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH₄	N₂O	CO₂	CO₂e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

2.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

    CEE_{POL}: Construction Exhaust Emissions (TONs)
    NE: Number of Equipment
    WD: Number of Total Work Days (days)
    H: Hours Worked per Day (hours)
    HP: Equipment Horsepower
    LF: Equipment Load Factor
    EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
    0.002205: Conversion Factor grams to pounds
    2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$$

    VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
    BA: Area of Building (ft²)
    BH: Height of Building (ft)
    (0.42 / 1000): Conversion Factor ft³ to trips (0.42 trip / 1000 ft³)
    HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

    V_{POL}: Vehicle Emissions (TONs)
    VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
    0.002205: Conversion Factor grams to pounds
    EF_{POL}: Emission Factor for Pollutant (grams/mile)
    VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

  VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
  WD: Number of Total Work Days (days)
  WT: Average Worker Round Trip Commute (mile)
  1.25: Conversion Factor Number of Construction Equipment to Number of Works
  NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

  V_{POL}: Vehicle Emissions (TONs)
  VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
  0.002205: Conversion Factor grams to pounds
  EF_{POL}: Emission Factor for Pollutant (grams/mile)
  VM: Worker Trips On Road Vehicle Mixture (%)
  2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$$

  VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
  BA: Area of Building (ft^2)
  BH: Height of Building (ft)
  (0.38 / 1000): Conversion Factor ft^3 to trips (0.38 trip / 1000 ft^3)
  HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$$

  V_{POL}: Vehicle Emissions (TONs)
  VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
  0.002205: Conversion Factor grams to pounds
  EF_{POL}: Emission Factor for Pollutant (grams/mile)
  VM: Worker Trips On Road Vehicle Mixture (%)
  2000: Conversion Factor pounds to tons

2.4 Architectural Coatings Phase

2.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
  Start Month: 1
  Start Quarter: 1
  Start Year: 2026

- Phase Duration
  Number of Month: 3
  Number of Days: 0

2.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
  Building Category: Non-Residential
  Total Square Footage (ft^2):   53810

Number of Units: N/A

- Architectural Coatings Default Settings
  Default Settings Used: Yes
  Average Day(s) worked per week: 5 (default)

- Worker Trips
  Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

2.4.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase
$$VMT_{WT} = (1 * WT * PA) / 800$$

    VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
    1: Conversion Factor man days to trips (1 trip / 1 man * day)
    WT: Average Worker Round Trip Commute (mile)
    PA: Paint Area (ft^2)
    800: Conversion Factor square feet to man days (1 ft^2 / 1 man * day)

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

    V_{POL}: Vehicle Emissions (TONs)
    VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
    0.002205: Conversion Factor grams to pounds
    EF_{POL}: Emission Factor for Pollutant (grams/mile)
    VM: Worker Trips On Road Vehicle Mixture (%)
    2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$

    VOC_{AC}: Architectural Coating VOC Emissions (TONs)
    BA: Area of Building (ft^2)
    2.0: Conversion Factor total area to coated area (2.0 ft^2 coated area / total area)
    0.0116: Emission Factor (lb/ft^2)
    2000: Conversion Factor pounds to tons

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
    County: Brevard
    Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Pervious Water percolation Pond and Impervious Water Retention Pond

- Activity Description:
    A new deluge water system and water-cooled diverter would be installed and comprised of new water tanks capable of delivering the necessary water pressure. If treatment or retention is required, an approximately 3,000 kiloliter (kl) impervious water retention pond and a pervious percolation pond would be constructed. Water would be routed to the retention pond at the edge of the flame diverter for treatment via trenches and graded concrete. After treatment, a pumping system would route the water to the adjoining pervious surface percolation pond

- Activity Start Date
    Start Month: 1
    Start Month: 2026

- Activity End Date
    Indefinite: False
    End Month: 1
    End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)	Pollutant	Total Emissions (TONs)
VOC	0.003030	PM 10	0.238439
SO$_x$	0.000080	PM 2.5	0.000932
NO$_x$	0.043487	Pb	0.000000
CO	0.042158	NH$_3$	0.000911

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)	Pollutant	Total Emissions (TONs)
CH$_4$	0.000371	CO$_2$	19.392544
N$_2$O	0.002178	CO$_2$e	20.050785

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)	Pollutant	Total Emissions (TONs)
CH$_4$	0.000371	CO$_2$	19.392544
N$_2$O	0.002178	CO$_2$e	20.050785

3.1 Trenching/Excavating Phase

3.1.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 0
    Number of Days: 10

3.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
    Area of Site to be Trenched/Excavated (ft²):   72396
    Amount of Material to be Hauled On-Site (yd³):   0
    Amount of Material to be Hauled Off-Site (yd³):   12066

- Trenching Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
    Average Hauling Truck Capacity (yd³):   20 (default)
    Average Hauling Truck Round Trip Commute (mile):   20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.39317	0.00542	3.40690	4.22083	0.09860	0.09071
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.45335	0.00542	3.58824	4.59368	0.11309	0.10404
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]				
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02381	0.00476	587.02896	589.04350
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]				
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02385	0.00477	587.87714	589.89459
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

3.1.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

PM10$_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

CEE$_{POL}$: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF$_{POL}$: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

4. Construction / Demolition

4.1 General Information & Timeline Assumptions

- Activity Location
   County: Brevard
   Regulatory Area(s):   NOT IN A REGULATORY AREA

- Activity Title: Methane Farm

- Activity Description:
   New construction activity would primarily consist of a launch mount positioned approximately 100 to
   200 m to the southeast of the current Falcon pad and a liquid methane farm located on the east side of
   LC-39A. The methane farm would be approximately 50 m x 70 m in size and structured similar to the

existing LOX farm

- Activity Start Date
    Start Month: 1
    Start Month: 2026

- Activity End Date
    Indefinite: False
    End Month: 3
    End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.568904
SO$_x$	0.001601
NO$_x$	0.792394
CO	1.046874

Pollutant	Total Emissions (TONs)
PM 10	2.468545
PM 2.5	0.028805
Pb	0.000000
NH$_3$	0.001974

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH$_4$	0.006787
N$_2$O	0.002870

Pollutant	Total Emissions (TONs)
CO$_2$	175.751025
CO$_2$e	176.775537

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH$_4$	0.006784
N$_2$O	0.002868

Pollutant	Total Emissions (TONs)
CO$_2$	175.658758
CO$_2$e	176.682754

4.1 Site Grading Phase

4.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

4.1.2 Site Grading Phase Assumptions

- General Site Grading Information
    Area of Site to be Graded (ft²):   40833
    Amount of Material to be Hauled On-Site (yd³):   0
    Amount of Material to be Hauled Off-Site (yd³):   0

- Site Grading Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day

Graders Composite	1	6
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	6
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust
   Average Hauling Truck Capacity (yd^3):   20 (default)
   Average Hauling Truck Round Trip Commute (mile):   20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
   Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

4.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.31292	0.00490	2.52757	3.39734	0.14041	0.12918

Other Construction Equipment Composite [HP: 82] [LF: 0.42]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.28160	0.00487	2.73375	3.50416	0.15811	0.14546

Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.35280	0.00491	3.22260	2.72624	0.14205	0.13069

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02153	0.00431	530.81500	532.63663

Other Construction Equipment Composite [HP: 82] [LF: 0.42]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.54121	529.35159

Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02160	0.00432	532.54993	534.37751

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480

LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

4.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

> $PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
> 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
> ACRE: Total acres (acres)
> WD: Number of Total Work Days (days)
> 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

> CEE_{POL}: Construction Exhaust Emissions (TONs)
> NE: Number of Equipment
> WD: Number of Total Work Days (days)
> H: Hours Worked per Day (hours)
> HP: Equipment Horsepower
> LF: Equipment Load Factor
> EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
> 0.002205: Conversion Factor grams to pounds
> 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)
> $HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd³)
> HC: Average Hauling Truck Capacity (yd³)
> (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
> HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT$_{WT}$: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V$_{POL}$: Vehicle Emissions (TONs)
VMT$_{WT}$: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF$_{POL}$: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

4.2 Trenching/Excavating Phase

4.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

4.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
    Area of Site to be Trenched/Excavated (ft²):   40833
    Amount of Material to be Hauled On-Site (yd³): 0
    Amount of Material to be Hauled Off-Site (yd⁵): 0

- Trenching Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
    Average Hauling Truck Capacity (yd³):   20 (default)
    Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
   Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

4.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5
Emission Factors	0.39317	0.00542	3.40690	4.22083	0.09860	0.09071

Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5
Emission Factors	0.45335	0.00542	3.58824	4.59368	0.11309	0.10404

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]				
	CH_4	N_2O	CO_2	CO_2e
Emission Factors	0.02381	0.00476	587.02896	589.04350

Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]				
	CH_4	N_2O	CO_2	CO_2e
Emission Factors	0.02385	0.00477	587.87714	589.89459

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH_4	N_2O	CO_2	CO_2e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5	NH₃
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

4.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

> $PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
> 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
> ACRE: Total acres (acres)
> WD: Number of Total Work Days (days)
> 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

> CEE_{POL}: Construction Exhaust Emissions (TONs)
> NE: Number of Equipment
> WD: Number of Total Work Days (days)
> H: Hours Worked per Day (hours)
> HP: Equipment Horsepower
> LF: Equipment Load Factor
> EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
> 0.002205: Conversion Factor grams to pounds
> 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
> $HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
> HC: Average Hauling Truck Capacity (yd^3)
> (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
> HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Vehicle Exhaust On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> WD: Number of Total Work Days (days)
> WT: Average Worker Round Trip Commute (mile)
> 1.25: Conversion Factor Number of Construction Equipment to Number of Works
> NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

4.3 Building Construction Phase

4.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

4.3.2 Building Construction Phase Assumptions

- General Building Construction Information
    Building Category: Office or Industrial
    Area of Building (ft²):   40833
    Height of Building (ft):   12.41
    Number of Units: N/A

- Building Construction Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	6
Forklifts Composite	2	6
Generator Sets Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8
Welders Composite	3	8

- Vehicle Exhaust
    Average Hauling Truck Round Trip Commute (mile):   20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips

Average Vendor Round Trip Commute (mile):   40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

4.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]					
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.19758	0.00487	1.83652	1.63713	0.07527	0.06925

Forklifts Composite [HP: 82] [LF: 0.2]					
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.24594	0.00487	2.34179	3.57902	0.11182	0.10287

Generator Sets Composite [HP: 14] [LF: 0.74]					
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.53947	0.00793	4.32399	2.85973	0.17412	0.16019

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]					
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

Welders Composite [HP: 46] [LF: 0.45]					
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.46472	0.00735	3.57020	4.49314	0.09550	0.08786

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.46069	529.27080

Forklifts Composite [HP: 82] [LF: 0.2]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02138	0.00428	527.09717	528.90603

Generator Sets Composite [HP: 14] [LF: 0.74]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02305	0.00461	568.32694	570.27730

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

Welders Composite [HP: 46] [LF: 0.45]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02305	0.00461	568.29068	570.24091

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490

LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

4.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft²)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft³ to trips (0.42 trip / 1000 ft³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$$

    VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
    BA: Area of Building (ft^2)
    BH: Height of Building (ft)
    (0.38 / 1000): Conversion Factor ft^3 to trips (0.38 trip / 1000 ft^3)
    HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$$

    V_{POL}: Vehicle Emissions (TONs)
    VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
    0.002205: Conversion Factor grams to pounds
    EF_{POL}: Emission Factor for Pollutant (grams/mile)
    VM: Worker Trips On Road Vehicle Mixture (%)
    2000: Conversion Factor pounds to tons

4.4 Architectural Coatings Phase

4.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

4.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
    Building Category: Non-Residential
    Total Square Footage (ft^2): 40833
    Number of Units: N/A

- Architectural Coatings Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Worker Trips
    Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

4.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	NH_3

LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

4.4.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$$VMT_{WT} = (1 * WT * PA) / 800$$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> 1: Conversion Factor man days to trips (1 trip / 1 man * day)
> WT: Average Worker Round Trip Commute (mile)
> PA: Paint Area (ft^2)
> 800: Conversion Factor square feet to man days (1 ft^2 / 1 man * day)

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Worker Trips On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$$

> VOC_{AC}: Architectural Coating VOC Emissions (TONs)
> BA: Area of Building (ft^2)
> 2.0: Conversion Factor total area to coated area (2.0 ft^2 coated area / total area)
> 0.0116: Emission Factor (lb/ft^2)
> 2000: Conversion Factor pounds to tons

5. Construction / Demolition

5.1 General Information & Timeline Assumptions

- Activity Location
    County: Brevard
    Regulatory Area(s):   NOT IN A REGULATORY AREA

- **Activity Title:**   Integration Tower

- **Activity Description:**
    Two integration towers, each approximately 600 feet tall, 40 feet wide, and 40 feet long
    would be used to vertically integrate the Starship-Super Heavy vehicle on the launch
    mount (Figure 2-6). The integration towers would be located on the launch pads. A
    lightning rod would be located on the top of each integration tower.

- **Activity Start Date**
    Start Month: 1
    Start Month: 2026

- **Activity End Date**
    Indefinite: False
    End Month: 3
    End Month: 2026

- **Activity Emissions:**

Pollutant	Total Emissions (TONs)
VOC	0.137208
SO$_x$	0.001401
NO$_x$	0.720899
CO	0.888531

Pollutant	Total Emissions (TONs)
PM 10	0.344104
PM 2.5	0.025700
Pb	0.000000
NH$_3$	0.004716

- **Activity Emissions of GHG:**

Pollutant	Total Emissions (TONs)
CH$_4$	0.006322
N$_2$O	0.010195

Pollutant	Total Emissions (TONs)
CO$_2$	200.053370
CO$_2$e	203.248831

- **Global Scale Activity Emissions for SCGHG:**

Pollutant	Total Emissions (TONs)
CH$_4$	0.006320
N$_2$O	0.010195

Pollutant	Total Emissions (TONs)
CO$_2$	200.005839
CO$_2$e	203.201034

5.1 Site Grading Phase

5.1.1 Site Grading Phase Timeline Assumptions

- **Phase Start Date**
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- **Phase Duration**
    Number of Month: 3
    Number of Days: 0

5.1.2 Site Grading Phase Assumptions

- **General Site Grading Information**
    Area of Site to be Graded (ft^2):   5297
    Amount of Material to be Hauled On-Site (yd^3):   0
    Amount of Material to be Hauled Off-Site (yd^3):   0

- **Site Grading Default Settings**
  - **Default Settings Used:** Yes
  - **Average Day(s) worked per week:** 5 (default)

- **Construction Exhaust (default)**

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	6
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	6
Tractors/Loaders/Backhoes Composite	1	7

- **Vehicle Exhaust**
  - **Average Hauling Truck Capacity (yd³):** 20 (default)
  - **Average Hauling Truck Round Trip Commute (mile):** 20 (default)

- **Vehicle Exhaust Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- **Worker Trips**
  - **Average Worker Round Trip Commute (mile):** 20 (default)

- **Worker Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

5.1.3 Site Grading Phase Emission Factor(s)

- **Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)**

Graders Composite [HP: 148] [LF: 0.41]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.31292	0.00490	2.52757	3.39734	0.14041	0.12918

Other Construction Equipment Composite [HP: 82] [LF: 0.42]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.28160	0.00487	2.73375	3.50416	0.15811	0.14546

Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.35280	0.00491	3.22260	2.72624	0.14205	0.13069

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- **Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)**

Graders Composite [HP: 148] [LF: 0.41]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02153	0.00431	530.81500	532.63663

Other Construction Equipment Composite [HP: 82] [LF: 0.42]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.54121	529.35159

Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02160	0.00432	532.54993	534.37751

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e

| Emission Factors | 0.02149 | 0.00430 | 529.70686 | 531.52468 |

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

5.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

> PM10$_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
> 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
> ACRE: Total acres (acres)
> WD: Number of Total Work Days (days)
> 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

> CEE$_{POL}$: Construction Exhaust Emissions (TONs)
> NE: Number of Equipment
> WD: Number of Total Work Days (days)
> H: Hours Worked per Day (hours)
> HP: Equipment Horsepower
> LF: Equipment Load Factor
> EF$_{POL}$: Emission Factor for Pollutant (g/hp-hour)
> 0.002205: Conversion Factor grams to pounds
> 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

> VMT$_{VE}$: Vehicle Exhaust Vehicle Miles Travel (miles)
> HA$_{OnSite}$: Amount of Material to be Hauled On-Site (yd^3)
> HA$_{OnSite}$: Amount of Material to be Hauled Off-Site (yd^3)
> HC: Average Hauling Truck Capacity (yd^3)
> (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
> HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

  V_{POL}: Vehicle Emissions (TONs)
  VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
  0.002205: Conversion Factor grams to pounds
  EF_{POL}: Emission Factor for Pollutant (grams/mile)
  VM: Vehicle Exhaust On Road Vehicle Mixture (%)
  2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

  VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
  WD: Number of Total Work Days (days)
  WT: Average Worker Round Trip Commute (mile)
  1.25: Conversion Factor Number of Construction Equipment to Number of Works
  NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

  V_{POL}: Vehicle Emissions (TONs)
  VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
  0.002205: Conversion Factor grams to pounds
  EF_{POL}: Emission Factor for Pollutant (grams/mile)
  VM: Worker Trips On Road Vehicle Mixture (%)
  2000: Conversion Factor pounds to tons

5.2 Trenching/Excavating Phase

5.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
  Start Month: 1
  Start Quarter: 1
  Start Year: 2026

- Phase Duration
  Number of Month: 3
  Number of Days: 0

5.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
  Area of Site to be Trenched/Excavated (ft²):   5297
  Amount of Material to be Hauled On-Site (yd³):   0
  Amount of Material to be Hauled Off-Site (yd³): 0

- Trenching Default Settings
  Default Settings Used: Yes
  Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day

Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³):	20 (default)
Average Hauling Truck Round Trip Commute (mile):	20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile):	20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

5.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5
Emission Factors	0.39317	0.00542	3.40690	4.22083	0.09860	0.09071

Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5
Emission Factors	0.45335	0.00542	3.58824	4.59368	0.11309	0.10404

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]			
	CH_4	N_2O	CO_2	CO_2e
Emission Factors	0.02381	0.00476	587.02896	589.04350

Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]			
	CH_4	N_2O	CO_2	CO_2e
Emission Factors	0.02385	0.00477	587.87714	589.89459

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH_4	N_2O	CO_2	CO_2e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5	NH₃
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e

LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

5.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

> $PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
> 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
> ACRE: Total acres (acres)
> WD: Number of Total Work Days (days)
> 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

> CEE_{POL}: Construction Exhaust Emissions (TONs)
> NE: Number of Equipment
> WD: Number of Total Work Days (days)
> H: Hours Worked per Day (hours)
> HP: Equipment Horsepower
> LF: Equipment Load Factor
> EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
> 0.002205: Conversion Factor grams to pounds
> 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)
> $HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd³)
> HC: Average Hauling Truck Capacity (yd³)
> (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
> HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Vehicle Exhaust On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

5.3 Building Construction Phase

5.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
  Start Month: 1
  Start Quarter: 1
  Start Year: 2026

- Phase Duration
  Number of Month: 3
  Number of Days: 0

5.3.2 Building Construction Phase Assumptions

- General Building Construction Information
  Building Category: Office or Industrial
  Area of Building (ft²): 5297
  Height of Building (ft): 600
  Number of Units: N/A

- Building Construction Default Settings
  Default Settings Used: Yes
  Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	4
Forklifts Composite	2	6
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
  Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
  Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips

Average Vendor Round Trip Commute (mile):   40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

5.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.19758	0.00487	1.83652	1.63713	0.07527	0.06925
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.24594	0.00487	2.34179	3.57902	0.11182	0.10287
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]				
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.46069	529.27080
Forklifts Composite [HP: 82] [LF: 0.2]				
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02138	0.00428	527.09717	528.90603
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

5.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft^3 to trips (0.42 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)

BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft^3 to trips (0.38 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

5.4 Architectural Coatings Phase

5.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

5.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
    Building Category: Non-Residential
    Total Square Footage (ft^2):   5297
    Number of Units: N/A

- Architectural Coatings Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

5.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SOx	NOx	CO	PM 10	PM 2.5	NH₃
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

5.4.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$$VMT_{WT} = (1 * WT * PA) / 800$$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> 1: Conversion Factor man days to trips (1 trip / 1 man * day)
> WT: Average Worker Round Trip Commute (mile)
> PA: Paint Area (ft^2)
> 800: Conversion Factor square feet to man days (1 ft^2 / 1 man * day)

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Worker Trips On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$$

> VOC_{AC}: Architectural Coating VOC Emissions (TONs)
> BA: Area of Building (ft^2)
> 2.0: Conversion Factor total area to coated area (2.0 ft^2 coated area / total area)
> 0.0116: Emission Factor (lb/ft^2)
> 2000: Conversion Factor pounds to tons

6. Construction / Demolition

6.1 General Information & Timeline Assumptions

- Activity Location
> **County:**   Brevard
> **Regulatory Area(s):**   NOT IN A REGULATORY AREA

- Activity Title: Launch Mount

- Activity Description:
> Two launch mounts, between 60 and 80 feet tall and 38 feet wide, would be used as the foundation for stacking the two stages of the Starship-Super Heavy launch vehicle

- **Activity Start Date**
  - Start Month: 1
  - Start Month: 2026

- **Activity End Date**
  - Indefinite: False
  - End Month: 3
  - End Month: 2026

- **Activity Emissions:**

Pollutant	Total Emissions (TONs)
VOC	0.106526
SO$_x$	0.001182
NO$_x$	0.598791
CO	0.805487

Pollutant	Total Emissions (TONs)
PM 10	0.213002
PM 2.5	0.023423
Pb	0.000000
NH$_3$	0.001292

- **Activity Emissions of GHG:**

Pollutant	Total Emissions (TONs)
CH$_4$	0.005307
N$_2$O	0.001749

Pollutant	Total Emissions (TONs)
CO$_2$	134.964722
CO$_2$e	135.618383

- **Global Scale Activity Emissions for SCGHG:**

Pollutant	Total Emissions (TONs)
CH$_4$	0.005304
N$_2$O	0.001748

Pollutant	Total Emissions (TONs)
CO$_2$	134.903210
CO$_2$e	135.556528

6.1 Site Grading Phase

6.1.1 Site Grading Phase Timeline Assumptions

- **Phase Start Date**
  - Start Month: 1
  - Start Quarter: 1
  - Start Year: 2026

- **Phase Duration**
  - Number of Month: 3
  - Number of Days: 0

6.1.2 Site Grading Phase Assumptions

- **General Site Grading Information**
  - Area of Site to be Graded (ft^2):   3142
  - Amount of Material to be Hauled On-Site (yd^3):   0
  - Amount of Material to be Hauled Off-Site (yd^3):   0

- **Site Grading Default Settings**
  - Default Settings Used: Yes
  - Average Day(s) worked per week: 5 (default)

- **Construction Exhaust (default)**

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	6
Other Construction Equipment Composite	1	8

Rubber Tired Dozers Composite	1	6
Tractors/Loaders/Backhoes Composite	1	7

- **Vehicle Exhaust**
  Average Hauling Truck Capacity (yd³):   20 (default)
  Average Hauling Truck Round Trip Commute (mile):   20 (default)

- **Vehicle Exhaust Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- **Worker Trips**
  Average Worker Round Trip Commute (mile):   20 (default)

- **Worker Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

6.1.3 Site Grading Phase Emission Factor(s)

- **Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)**

Graders Composite [HP: 148] [LF: 0.41]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.31292	0.00490	2.52757	3.39734	0.14041	0.12918
Other Construction Equipment Composite [HP: 82] [LF: 0.42]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.28160	0.00487	2.73375	3.50416	0.15811	0.14546
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.35280	0.00491	3.22260	2.72624	0.14205	0.13069
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- **Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)**

Graders Composite [HP: 148] [LF: 0.41]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02153	0.00431	530.81500	532.63663
Other Construction Equipment Composite [HP: 82] [LF: 0.42]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.54121	529.35159
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02160	0.00432	532.54993	534.37751
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- **Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)**

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751

| HDDV | 0.10944 | 0.00419 | 2.34024 | 1.60034 | 0.04742 | 0.04363 | 0.06571 |
| MC | 3.20770 | 0.00193 | 0.54558 | 12.49470 | 0.02291 | 0.02026 | 0.05171 |

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_{2e}
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

6.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

    $PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
    20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
    ACRE: Total acres (acres)
    WD: Number of Total Work Days (days)
    2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

    CEE_{POL}: Construction Exhaust Emissions (TONs)
    NE: Number of Equipment
    WD: Number of Total Work Days (days)
    H: Hours Worked per Day (hours)
    HP: Equipment Horsepower
    LF: Equipment Load Factor
    EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
    0.002205: Conversion Factor grams to pounds
    2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

    VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
    HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
    HA_{OnSite}: Amount of Material to be Hauled Off-Site (yd^3)
    HC: Average Hauling Truck Capacity (yd^3)
    (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
    HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

    V_{POL}: Vehicle Emissions (TONs)
    VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
    0.002205: Conversion Factor grams to pounds
    EF_{POL}: Emission Factor for Pollutant (grams/mile)
    VM: Vehicle Exhaust On Road Vehicle Mixture (%)
    2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> WD: Number of Total Work Days (days)
> WT: Average Worker Round Trip Commute (mile)
> 1.25: Conversion Factor Number of Construction Equipment to Number of Works
> NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Worker Trips On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

6.2 Trenching/Excavating Phase

6.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month:	1
Start Quarter:	1
Start Year:	2026

- Phase Duration
Number of Month:	3
Number of Days:	0

6.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft²):	3142
Amount of Material to be Hauled On-Site (yd³):	0
Amount of Material to be Hauled Off-Site (yd³):	0

- Trenching Default Settings
Default Settings Used:	Yes
Average Day(s) worked per week:	5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd³):	20 (default)
Average Hauling Truck Round Trip Commute (mile):	20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

6.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.39317	0.00542	3.40690	4.22083	0.09860	0.09071

Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.45335	0.00542	3.58824	4.59368	0.11309	0.10404

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02381	0.00476	587.02896	589.04350

Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02385	0.00477	587.87714	589.89459

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

6.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

> $PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
> 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
> ACRE: Total acres (acres)
> WD: Number of Total Work Days (days)
> 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

> CEE_{POL}: Construction Exhaust Emissions (TONs)
> NE: Number of Equipment
> WD: Number of Total Work Days (days)
> H: Hours Worked per Day (hours)
> HP: Equipment Horsepower
> LF: Equipment Load Factor
> EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
> 0.002205: Conversion Factor grams to pounds
> 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{offsite}) * (1 / HC) * HT$

> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)
> $HA_{offsite}$: Amount of Material to be Hauled Off-Site (yd³)
> HC: Average Hauling Truck Capacity (yd³)
> (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
> HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Vehicle Exhaust On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> WD: Number of Total Work Days (days)
> WT: Average Worker Round Trip Commute (mile)
> 1.25: Conversion Factor Number of Construction Equipment to Number of Works
> NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

6.3 Building Construction Phase

6.3.1 Building Construction Phase Timeline Assumptions

- **Phase Start Date**
  Start Month: 1
  Start Quarter: 1
  Start Year: 2026

- **Phase Duration**
  Number of Month: 3
  Number of Days: 0

6.3.2 Building Construction Phase Assumptions

- **General Building Construction Information**
  Building Category: Office or Industrial
  Area of Building (ft²): 3142
  Height of Building (ft): 70
  Number of Units: N/A

- **Building Construction Default Settings**
  Default Settings Used: Yes
  Average Day(s) worked per week: 5 (default)

- **Construction Exhaust (default)**

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	4
Forklifts Composite	2	6
Tractors/Loaders/Backhoes Composite	1	8

- **Vehicle Exhaust**
  Average Hauling Truck Round Trip Commute (mile): 20 (default)

- **Vehicle Exhaust Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- **Worker Trips**
  Average Worker Round Trip Commute (mile): 20 (default)

- **Worker Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- **Vendor Trips**
  Average Vendor Round Trip Commute (mile): 40 (default)

- **Vendor Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC

| POVs | 0 | 0 | 0 | 0 | 0 | 100.00 | 0 |

6.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.19758	0.00487	1.83652	1.63713	0.07527	0.06925
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.24594	0.00487	2.34179	3.57902	0.11182	0.10287
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.46069	529.27080
Forklifts Composite [HP: 82] [LF: 0.2]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02138	0.00428	527.09717	528.90603
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

6.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE$_{POL}$: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)

HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft²)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft³ to trips (0.42 trip / 1000 ft³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft²)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft³ to trips (0.38 trip / 1000 ft²)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

6.4 Architectural Coatings Phase

6.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

6.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
    Building Category: Non-Residential
    Total Square Footage (ft²):   3142
    Number of Units: N/A

- Architectural Coatings Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

6.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517

| MC | 0.11230 | 0.00331 | 391.17366 | 394.96854 |

6.4.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$$VMT_{WT} = (1 * WT * PA) / 800$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
1: Conversion Factor man days to trips (1 trip / 1 man * day)
WT: Average Worker Round Trip Commute (mile)
PA: Paint Area (ft²)
800: Conversion Factor square feet to man days (1 ft² / 1 man * day)

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$$

VOC_{AC}: Architectural Coating VOC Emissions (TONs)
BA: Area of Building (ft²)
2.0: Conversion Factor total area to coated area (2.0 ft² coated area / total area)
0.0116: Emission Factor (lb/ft²)
2000: Conversion Factor pounds to tons

7. Construction / Demolition

7.1 General Information & Timeline Assumptions

- Activity Location
County: Brevard
Regulatory Area(s):   NOT IN A REGULATORY AREA

- Activity Title: Catch Tower

- Activity Description:
Two catch towers, similar to the integration towers, would support Super Heavy landings and serve as pre-flight operation test stands.

- Activity Start Date
Start Month: 1
Start Month: 2026

- Activity End Date
Indefinite: False
End Month: 3
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.879648
SO_x	0.004293
NO_x	2.296198
CO	2.075595

Pollutant	Total Emissions (TONs)
PM 10	3.735987
PM 2.5	0.056841
Pb	0.000000
NH_3	0.044202

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH_4	0.019306
N_2O	0.106885

Pollutant	Total Emissions (TONs)
CO_2	977.790506
CO_2e	1010.117337

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH_4	0.019302
N_2O	0.106883

Pollutant	Total Emissions (TONs)
CO_2	977.687055
CO_2e	1010.013307

7.1 Site Grading Phase

7.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

7.1.2 Site Grading Phase Assumptions

- General Site Grading Information
    Area of Site to be Graded (ft²):   61557
    Amount of Material to be Hauled On-Site (yd³):   0
    Amount of Material to be Hauled Off-Site (yd³):   0

- Site Grading Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	6
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	6
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust
    Average Hauling Truck Capacity (yd³):   20 (default)
    Average Hauling Truck Round Trip Commute (mile):   20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC

| POVs | 0 | 0 | 0 | 0 | 0 | 100.00 | 0 |

- Worker Trips
   Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

7.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.31292	0.00490	2.52757	3.39734	0.14041	0.12918
Other Construction Equipment Composite [HP: 82] [LF: 0.42]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.28160	0.00487	2.73375	3.50416	0.15811	0.14546
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.35280	0.00491	3.22260	2.72624	0.14205	0.13069
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02153	0.00431	530.81500	532.63663
Other Construction Equipment Composite [HP: 82] [LF: 0.42]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.54121	529.35159
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02160	0.00432	532.54993	534.37751
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113

LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

7.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd³)
HC: Average Hauling Truck Capacity (yd³)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

7.2 Trenching/Excavating Phase

7.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
  Start Month: 1
  Start Quarter: 1
  Start Year: 2026

- Phase Duration
  Number of Month: 3
  Number of Days: 0

7.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
  Area of Site to be Trenched/Excavated (ft^2): 61557
  Amount of Material to be Hauled On-Site (yd^3): 0
  Amount of Material to be Hauled Off-Site (yd^3): 0

- Trenching Default Settings
  Default Settings Used: Yes
  Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
  Average Hauling Truck Capacity (yd^3): 20 (default)
  Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
  Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

7.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.39317	0.00542	3.40690	4.22083	0.09860	0.09071
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.45335	0.00542	3.58824	4.59368	0.11309	0.10404
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]				
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02381	0.00476	587.02896	589.04350
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]				
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02385	0.00477	587.87714	589.89459
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

7.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

> $PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
> 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
> ACRE: Total acres (acres)
> WD: Number of Total Work Days (days)
> 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

> CEE_{POL}: Construction Exhaust Emissions (TONs)
> NE: Number of Equipment
> WD: Number of Total Work Days (days)
> H: Hours Worked per Day (hours)
> HP: Equipment Horsepower
> LF: Equipment Load Factor
> EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
> 0.002205: Conversion Factor grams to pounds
> 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{offsite}) * (1 / HC) * HT$$

> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)
> $HA_{offsite}$: Amount of Material to be Hauled Off-Site (yd³)
> HC: Average Hauling Truck Capacity (yd³)
> (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
> HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Vehicle Exhaust On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> WD: Number of Total Work Days (days)
> WT: Average Worker Round Trip Commute (mile)
> 1.25: Conversion Factor Number of Construction Equipment to Number of Works
> NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Worker Trips On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

7.3 Building Construction Phase

7.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
  Start Month: 1

Start Quarter: 1
Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

7.3.2 Building Construction Phase Assumptions

- General Building Construction Information
    Building Category: Office or Industrial
    Area of Building (ft²):   61557
    Height of Building (ft):   600
    Number of Units: N/A

- Building Construction Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	6
Forklifts Composite	2	6
Generator Sets Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8
Welders Composite	3	8

- Vehicle Exhaust
    Average Hauling Truck Round Trip Commute (mile):   20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips
    Average Vendor Round Trip Commute (mile):   40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

7.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	SOₓ	NOₓ	CO	PM 10	PM 2.5
Emission Factors	0.19758	0.00487	1.83652	1.63713	0.07527	0.06925

Forklifts Composite [HP: 82] [LF: 0.2]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.24594	0.00487	2.34179	3.57902	0.11182	0.10287

Generator Sets Composite [HP: 14] [LF: 0.74]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.53947	0.00793	4.32399	2.85973	0.17412	0.16019

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

Welders Composite [HP: 46] [LF: 0.45]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.46472	0.00735	3.57020	4.49314	0.09550	0.08786

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.46069	529.27080

Forklifts Composite [HP: 82] [LF: 0.2]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02138	0.00428	527.09717	528.90603

Generator Sets Composite [HP: 14] [LF: 0.74]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02305	0.00461	568.32694	570.27730

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

Welders Composite [HP: 46] [LF: 0.45]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02305	0.00461	568.29068	570.24091

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

7.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft^3 to trips (0.42 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase
$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft^3 to trips (0.38 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

7.4 Architectural Coatings Phase

7.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

7.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
    Building Category: Non-Residential
    Total Square Footage (ft²): 61557
    Number of Units: N/A

- Architectural Coatings Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

7.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139

HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

7.4.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$VMT_{WT} = (1 * WT * PA) / 800$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> 1: Conversion Factor man days to trips (1 trip / 1 man * day)
> WT: Average Worker Round Trip Commute (mile)
> PA: Paint Area (ft²)
> 800: Conversion Factor square feet to man days (1 ft² / 1 man * day)

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Worker Trips On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$

> VOC_{AC}: Architectural Coating VOC Emissions (TONs)
> BA: Area of Building (ft²)
> 2.0: Conversion Factor total area to coated area (2.0 ft² coated area / total area)
> 0.0116: Emission Factor (lb/ft²)
> 2000: Conversion Factor pounds to tons

8. Construction / Demolition

8.1 General Information & Timeline Assumptions

- Activity Location
  County: Brevard
  Regulatory Area(s):   NOT IN A REGULATORY AREA

- Activity Title: LN2 Farms

- Activity Description:
  Commodity tanks would hold LOX, LN2, water, helium, gaseous nitrogen, gaseous methane, and liquid methane. Approximately 8 acres of the launch site would be used for commodity storage

- Activity Start Date
  Start Month: 1
  Start Month: 2026

- Activity End Date

Indefinite: False
End Month: 3
End Month: 2026

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.265215
SO$_x$	0.001174
NO$_x$	0.593741
CO	0.803313

Pollutant	Total Emissions (TONs)
PM 10	1.030265
PM 2.5	0.023329
Pb	0.000000
NH$_3$	0.001163

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH$_4$	0.005268
N$_2$O	0.001399

Pollutant	Total Emissions (TONs)
CO$_2$	132.367346
CO$_2$e	132.915707

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH$_4$	0.005265
N$_2$O	0.001397

Pollutant	Total Emissions (TONs)
CO$_2$	132.266692
CO$_2$e	132.814489

8.1 Site Grading Phase

8.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

8.1.2 Site Grading Phase Assumptions

- General Site Grading Information
    Area of Site to be Graded (ft^2): 16836
    Amount of Material to be Hauled On-Site (yd^3): 0
    Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	6
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	6
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust
    Average Hauling Truck Capacity (yd^3): 20 (default)

Average Hauling Truck Round Trip Commute (mile):   20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

8.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.31292	0.00490	2.52757	3.39734	0.14041	0.12918

Other Construction Equipment Composite [HP: 82] [LF: 0.42]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.28160	0.00487	2.73375	3.50416	0.15811	0.14546

Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.35280	0.00491	3.22260	2.72624	0.14205	0.13069

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02153	0.00431	530.81500	532.63663

Other Construction Equipment Composite [HP: 82] [LF: 0.42]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.54121	529.35159

Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02160	0.00432	532.54993	534.37751

Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e

LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

8.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

> $PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
> 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
> ACRE: Total acres (acres)
> WD: Number of Total Work Days (days)
> 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

> CEE_{POL}: Construction Exhaust Emissions (TONs)
> NE: Number of Equipment
> WD: Number of Total Work Days (days)
> H: Hours Worked per Day (hours)
> HP: Equipment Horsepower
> LF: Equipment Load Factor
> EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
> 0.002205: Conversion Factor grams to pounds
> 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
> $HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
> HC: Average Hauling Truck Capacity (yd^3)
> (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
> HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

> V_{POL}: Vehicle Emissions (TONs)
> VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
> 0.002205: Conversion Factor grams to pounds
> EF_{POL}: Emission Factor for Pollutant (grams/mile)
> VM: Vehicle Exhaust On Road Vehicle Mixture (%)
> 2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

> VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
> WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

8.2 Trenching/Excavating Phase

8.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

8.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
    Area of Site to be Trenched/Excavated (ft²):   16836
    Amount of Material to be Hauled On-Site (yd³):   0
    Amount of Material to be Hauled Off-Site (yd³): 0

- Trenching Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
    Average Hauling Truck Capacity (yd³):   20 (default)
    Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

8.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.39317	0.00542	3.40690	4.22083	0.09860	0.09071
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.45335	0.00542	3.58824	4.59368	0.11309	0.10404
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02381	0.00476	587.02896	589.04350
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02385	0.00477	587.87714	589.89459
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

8.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

PM10$_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)

ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{offsite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
HA_{onsite}: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

8.3 Building Construction Phase

8.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
    Start Month: 1
    Start Quarter: 1
    Start Year: 2026

- Phase Duration
    Number of Month: 3
    Number of Days: 0

8.3.2 Building Construction Phase Assumptions

- General Building Construction Information
    Building Category: Commercial or Retail
    Area of Building (ft²): 16836
    Height of Building (ft): 12.41
    Number of Units: N/A

- Building Construction Default Settings
    Default Settings Used: Yes
    Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	4
Forklifts Composite	2	6
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
    Average Hauling Truck Round Trip Commute (mile):   20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
    Average Worker Round Trip Commute (mile):   20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips
    Average Vendor Round Trip Commute (mile):   40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

8.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)
Cranes Composite [HP: 367] [LF: 0.29]

	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.19758	0.00487	1.83652	1.63713	0.07527	0.06925
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.24594	0.00487	2.34179	3.57902	0.11182	0.10287
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO$_x$	NO$_x$	CO	PM 10	PM 2.5
Emission Factors	0.18406	0.00489	1.88476	3.48102	0.06347	0.05839

- **Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)**

Cranes Composite [HP: 367] [LF: 0.29]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02140	0.00428	527.46069	529.27080
Forklifts Composite [HP: 82] [LF: 0.2]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02138	0.00428	527.09717	528.90603
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]			
	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
Emission Factors	0.02149	0.00430	529.70686	531.52468

- **Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)**

	VOC	SO$_x$	NO$_x$	CO	PM 2.5	PM 2.5	NH$_3$
LDGV	0.26860	0.00172	0.11494	4.59156	0.00364	0.00322	0.05129
LDGT	0.22958	0.00212	0.14451	3.87645	0.00408	0.00361	0.04304
HDGV	0.88395	0.00483	0.59039	11.06281	0.01969	0.01741	0.09480
LDDV	0.08708	0.00132	0.14749	6.56557	0.00364	0.00335	0.01705
LDDT	0.15078	0.00150	0.41118	5.60763	0.00583	0.00536	0.01751
HDDV	0.10944	0.00419	2.34024	1.60034	0.04742	0.04363	0.06571
MC	3.20770	0.00193	0.54558	12.49470	0.02291	0.02026	0.05171

- **Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)**

	CH$_4$	N$_2$O	CO$_2$	CO$_2$e
LDGV	0.01351	0.00495	340.96759	342.77490
LDGT	0.01304	0.00715	419.83935	422.29139
HDGV	0.05499	0.02808	955.36623	965.09057
LDDV	0.04285	0.00073	393.05215	394.34113
LDDT	0.03067	0.00109	441.62237	442.71351
HDDV	0.01948	0.16187	1248.10200	1296.81517
MC	0.11230	0.00331	391.17366	394.96854

8.3.4 Building Construction Phase Formula(s)

- **Construction Exhaust Emissions per Phase**

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE$_{POL}$: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF$_{POL}$: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (0.32 / 1000) * HT$

    VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
    BA: Area of Building (ft^2)
    BH: Height of Building (ft)
    (0.32 / 1000): Conversion Factor ft^3 to trips (0.32 trip / 1000 ft^3)
    HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

    V_{POL}: Vehicle Emissions (TONs)
    VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
    0.002205: Conversion Factor grams to pounds
    EF_{POL}: Emission Factor for Pollutant (grams/mile)
    VM: Worker Trips On Road Vehicle Mixture (%)
    2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

    VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
    WD: Number of Total Work Days (days)
    WT: Average Worker Round Trip Commute (mile)
    1.25: Conversion Factor Number of Construction Equipment to Number of Works
    NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

    V_{POL}: Vehicle Emissions (TONs)
    VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
    0.002205: Conversion Factor grams to pounds
    EF_{POL}: Emission Factor for Pollutant (grams/mile)
    VM: Worker Trips On Road Vehicle Mixture (%)
    2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$VMT_{VT} = BA * BH * (0.05 / 1000) * HT$

    VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
    BA: Area of Building (ft^2)
    BH: Height of Building (ft)
    (0.05 / 1000): Conversion Factor ft^3 to trips (0.05 trip / 1000 ft^3)
    HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

    V_{POL}: Vehicle Emissions (TONs)
    VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
    0.002205: Conversion Factor grams to pounds
    EF_{POL}: Emission Factor for Pollutant (grams/mile)
    VM: Worker Trips On Road Vehicle Mixture (%)
    2000: Conversion Factor pounds to tons

8.4 Architectural Coatings Phase